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ABSTRACT

This publication is part of the study materials for the distance education course, Curriculum and Competencies, in the Open Campus Program at Deakin University. It contains 39 papers on the nature, historical development, and delivery of competency-based training (CBT) and on the Australian and international debates surrounding CBT. The following papers are included: "Introduction to the Discourse on Competency-Based Training (CBT)" (Brown); "Competency-Based Education" (Spady); "Competency-Based Approach to Education and Training" (Blank); "Competency-Based Training Programs" (Foyster); "Aspects of the Framework for the Implementation of a Competency-Based Vocational Education and Training System" (VEETAC [Vocational Education, Employment, and Training Advisory Council]); "History of the Objectives Movement in Education" (Davies); "Educational Responses to the Concern for Proficiency" (Neumann); "Competence-Based Education and Training" (Tuxworth); "From Novice to Expert" (Benner); "Concept of Competence" (Jessup); "Competency-Based Training" (Thomson); "Standards and Training" (National Training Board, Rumsey, Cooper, Haines); "Statewide System for Competency-Based Instruction" (Blank); "Developing a Coherent National Framework of Qualifications" (Jessup); "Developing New Competencies for Workplace Education" (Mawer); "National Training Reform Agenda and Enterprise Bargaining" (Mansfield); "Critical Analysis of Competency-Based Systems in Adult Education" (Collins); "In Search of a Real Analysis" (Parker); "Rebuttal to: A Critical Analysis of Competency-Based Systems in Adult Education" (Ratcliff);

"Competency-Based Adult Education and Variations on the Theme" (Collins); "Case against 'Competence'" (Jackson); "On 'Competence'" (Ashworth, Saxton); "Rise of Competency-Based Education" (Magnusson, Osborne); "Competency-Based Skills Training" (Gossett, Kane, Tesolowski); "Competency and the Pedagogy of Labour" (Field); "Trouble with Competence" (Norris); "NVQs (National Vocational Qualifications)" (Marshall); "Alternative Models of Competence in Vocational Education and Training" (Hodkinson); "Modularisation" (Ker); "Competency-Based Programs" (Harris, Barnes, Haines); "Implementing Competency-Based Vocational Education" (Candy, Harris); "Competency-Based Vocational Education" (Watson); "How Clever Are We...in the Way We Train Our Workers?" (Scott); "Qualified for the Job" (Cooper); "Ford Factory Learning" (Brown); "Vocational Education and Training Curriculum Policy" (Winning); "Skills, Self-Paced Learning and Work" (Davison, Smith); "Competency-Based Learning at Richmond College of TAFE (Technical and Further Education)" (Fahey); "From Concept to Practice" (Bryson, Edgar, McAleavy); and "Applications at the NAB (National Australia Bank)" (McKinnon, Cherry). Many papers contain substantial bibliographies. (MN)

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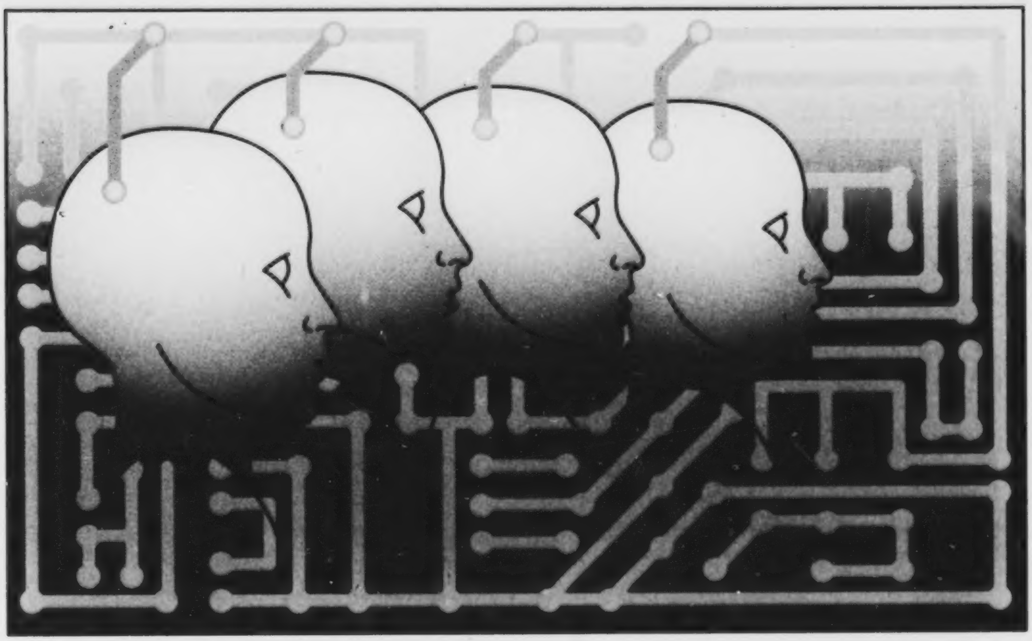

A COLLECTION OF READINGS RELATED TO COMPETENCY-BASED TRAINING

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EAE604 CURRICULUM AND COMPETENCIES

A COLLECTION OF READINGS RELATED TO COMPETENCY-BASED TRAINING

DEAKIN UNIVERSITY

This book has been produced as part of the study materials for EAE604 *Curriculum and Competencies*, which is one of the units offered by the Faculty of Education in Deakin University's Open Campus Program. It has been prepared for the unit team, whose members are:
Mike Brown
Frances Patrick (developer)
Doris Tate
Steve Wright

The study materials include:
A Collection of Original Essays on Curriculum for the Workplace
A Collection of Readings Related to Competency-based Training

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Series introduction

The nature and purpose of education in the workplace has been the subject of much debate in Australia in recent years. While the vagaries of local and international competition have led many firms to reconsider the role of their workforce and the training requirements this entails, governments have been equally keen to adapt existing education systems to the perceived needs of industry. Leading union bodies have been distinguished in this debate by their pro-active role, outlining the path by which a reconstructed industrial climate can win the nation a new place in the world economy.

The study materials of which this volume is a part explore the approaches to learning currently modelled within industry. In the process the question inevitably arises as to whether existing orientations and practices are in the best interests of the various stakeholders in the workplace.

The arguments developed in these volumes address themselves to a range of contemporary issues in industrial education. To date, prevailing approaches have rested upon narrow, instrumentalist notions of learning; in their different ways, the writers have set out to challenge this orthodoxy. In doing so, they highlight the silences—on questions of gender, class or ethnicity—that underpin the behaviourist outlook still dominant in the world of training.

In preparing these study materials, the course team has sought to address issues that are of fundamental concern to those involved in the complex and demanding field of workplace learning. It is hoped that, in its own modest way, the pedagogy we have developed can serve to exemplify a different notion of what industrial education might become.

8

AN INTRODUCTION TO THE DISCOURSE ON COMPETENCY-BASED TRAINING (CBT)

MIKE BROWN

The purpose of collating these readings into a single volume is to make an attempt at placing the present emphasis upon competency-based approaches to training (CBT) within a wider discourse of social, historical and political significance. The readings have been categorised into seven sections and are arranged chronologically within each. It is hoped that students of education and especially those focusing on vocational education and training (VET) will find these readings insightful and a useful beginning to what is fast becoming the dominant discourse in work-related learning.

CBT and the broader context

Considerable agreement has developed over the past two decades that the work methods and traditional approach to industrial matters are outdated and in need of replacement. To what extent the alternatives which are presently being tried out are to become the basis of a new paradigm remains to be seen, or proven. The agreement on the necessity for change has prompted an alliance with tripartite commitment from the industrial parties: trade union officials, employer representatives and the Federal government. These parties have held summits and conferences that have resulted in the issuing of joint statements and directives. What has emerged is a clear message on the need for workplace change and reform. The focus of this tripartite agreement has been the aim to improve and increase productivity.

Initially, this agenda for change was seen as being union driven, largely because of the close working relationship between members of the Federal Labor government and those in the Australian Council of Trade Unions (ACTU). One of the formative influences on this agenda was the trade mission to Northern and Western Europe in 1986. This resulted in a blueprint for change aptly entitled *Australia Reconstructed* (ACTU/TDC 1987). The trade unions wanted to combat the shifting of work offshore. To them this shift represented a loss of jobs to their members. They saw this as their way of fighting against one aspect of structural unemployment. Gradually the voices of the employers also began to be heard loud and clear as they recognised the changes as holding opportunities to prosper. Australian employers also needed the work located here so that they could get a slice of the potentially profit-producing action. After all did not someone once explain that General Motors was not in the business of making cars, it made profits. This reflects the reality that for an investor or an employer the making of products or the provision of a service or information is a means to an end. Similarly, the government also has an obvious stake in retaining the work within Australia and subsequently benefiting through being seen as managing a successful and lucrative economy, hopefully attracting overseas investment.

In fostering these outcomes all parties came out in favour of making changes and catching up with Australia's overseas competitors. This gave credence to an onslaught of proposals and activities for restructuring.

Restructuring became one of many labels in this historical period that took on a multitude of meanings. At one level it referred to the dynamic re-positioning of Australian capitalism within the rapidly changing conditions of the global economy. At another level it referred to a switching of the outcome or commodities that had traditionally been the emphasis of Australian sales and exports. At yet another level, restructuring referred to the re-negotiation of the methods and conditions of work. This led to the changes associated with award restructuring. At each of these levels, though, the primary concern was the achievement of increases in productivity, and the flow-on effect would include the retention of jobs and if possible growth in Australia's industry and production.

It was in this climate that agreements were negotiated to introduce new technologies such as computerisation and new approaches to work organisation. In accordance with these initiatives, it quickly became apparent that the opportunity existed to overhaul outdated industrial relations laws. This led to the introduction of the Structural Efficiency Principle (SEP). The changes which resulted from these initiatives were experienced differently amongst working people. For some workers there were very positive improvements associated with the introduction of multiskilling, more flexible and improved working conditions. However, for others it was not as positive and in some cases led to redundancies and unemployment.

The Structural Efficiency Principle listed a number of conditions under which workers could set about claiming increases to their wages. Amongst these was an undertaking to review their existing pay and conditions with the intention of negotiating changes aimed at achieving more flexible arrangements that could result in increased productivity.

These aspects of the workplace reform agenda, as it has become known, saw the industrial parties develop job classifications and occupational standards. These levels formed a hierarchical arrangement and articulated with each other, and for some workers these formed the basis for a career path (Mawer 1992).

The job classifications and occupational standards provide a means of identifying job tasks and functions along with the abilities needed to carry out these particular jobs. Of particular significance was the intention of the industrial parties to establish a technical or objectified approach to industrial relations based upon predetermined and agreed criteria—an aim which is not lost on anyone who has been involved in industrial negotiations of this kind. Presumably, classifying a worker to a particular level of job as described within the skill-based awards would become a simple matter of comparing either appropriately aligned credentials or ability to perform and function against the previously agreed specified standards. By objectifying the criteria the industrial parties believed they had moved another step towards consensus and cooperation, and what remained was the need to find or develop a compatible approach to training: enter CBT.

The move to skill-based awards brought vocational education and training to the forefront of the industrial relations arena. This has led to the overhaul and systematisation of vocational education and training, or what I have described elsewhere (Brown 1993) as the development of a series of interlocking and compatible subsystems such as the Australian Standards Framework, the National Qualifications Framework, the Australian Vocational Certificate Training System, the Recognition of Prior Learning and, of course, competency-based training. All of these occur in a context where an increasing number of workers are moving to be covered by skill-based awards.

The training reform agenda

This agenda is considered to be a subset of the larger workplace reform agenda. Up until quite recently it was generally agreed that the training reform agenda stemmed from three main reports, each the result of a different government-sponsored inquiry. These three reports are: *Young People's Participation in Post-Compulsory Education and Training: Report of the Australian Education Council* (Australian Education Council 1991), *Putting a General Education to Work* (Australian Education Council/MOVEET 1992), and *The Australian Vocational Certificate Training System* (Employment and Skills Formation Council 1992). These are more widely referred to by the name of the person who chaired the inquiry and so are recognised as the Finn, Mayer and Carmichael reports respectively.

In summary, the Finn review identified the need to raise the level of work-related skills that young people have when they enter the workforce. The report sets out recommendations and targets on the retention rates for young people within education and training institutions. It calls for an increase in the numbers of those young people leaving schools to move into TAFE courses, a politically wise move considering the rate of youth unemployment. This work argues strongly that TAFE's role is primarily concerned with the development and delivery of high quality vocational education and training that is relevant to industry needs and aligned to standards which the industrial parties set. Finn's committee identified six key areas of competence for all young people engaged in post-compulsory education and training. These were based upon what was considered to be essential for the workplace.

These became the starting place for the Mayer committee. After much consultation and debate Mayer's committee reconsidered the key areas of competence suggested by Finn and finally agreed to seven key competencies. These are considered essential for all those entering (or working in) the workplace. They are described by Mayer as necessary 'for effective participation in the emerging patterns of work and work organisation'. The key competencies align closely to the perceived requirements for working within the restructured workplace.

The third report, *The Australian Vocational Certificate Training System*, resulted from the committee chaired by Laurie Carmichael. Carmichael was until recently the Assistant Secretary of the ACTU and has been one of the architects behind the workplace and training reform agendas. In this report, Carmichael proposes the establishment of a new four-level, national, competency-based training system. Sensibly the four levels of the AVCTS align with the ASF levels

1 to 4. The new AVC training system would incorporate and extend its coverage over the existing apprenticeship, traineeship, and labour market programs bringing these under the same nationally consistent and recognised framework.

As a Curriculum Officer within the TAFE sector it is the Carmichael report which has an impact most directly on my work and that of vocational education and training (VET). In fact, the second chapter of Carmichael's report is dedicated to explaining competency-based training (CBT).

What is CBT?

The definition of CBT shifts around and means different things to different people to the extent that the ambiguity becomes very confusing, sometimes a convenience. For some CBT is a system, while for others it can alternatively be an approach to training, a form of assessment, a model of curriculum or even the use and delivery of training using specially designed training packages.

It is interesting to compare the following definitions, to note the differences and to consider the sources, i.e. who is saying what and why?

> CBT is a system that contains:
>
> OUTCOMES to national standard specifications of competence.
>
> CURRICULUM that gives learners a clear indication of what is expected of them to demonstrate competence.
>
> DELIVERY methods that do not oblige learners to undertake training or continue to be trained for skills they already possess.
>
> ASSESSMENT of competence which is available when learners believe they are able to demonstrate competence.
>
> RECORD of competencies gained and available to learners upon successful demonstration of competence.
>
> (Source: *Competency Based Training: A Systematic Approach*, Information Statement No.2, May 1991, State Training Board, Victoria)

Compare the above emphasis with the definition from the Confederation of Australian Industry (CAI), an organisation I would call an employers group:

> CBT is a way of approaching vocational training that places primary emphasis on what a person can actually do in the workplace as a result of training, (the outcome), and as such represents a shift away from an emphasis on the process involved in training, (the input). It is concerned with training to industry specific standards rather than with an individual's achievement relative to others in a group.
>
> (Source: CBT: Proposals for the Australian Vocational Education and Training System, CAI, July 1991)

Yet another definition is set out below:

> Competency based training is concerned with the attainment and demonstration of specified skills and knowledge and their application to minimum industry specified standards as endorsed by the National Training Board (NTB).
>
> (Source: VEETAC Working Party on the Implementation of Competency Based Training, 1992)

These definitions are what have been described as prescriptive definitions. They set out the principles on which specific applications are based. They are up-front definitions for CBT. By contrast another method that has been used throughout the history of the approach is more descriptive. This involves the development of meaning from the study of models in operation: the use of case studies to define CBT through its applications or from practice.

With all these definitions it is easy to understand the statement from two academic researchers and advocates for the approach based at the University of Technology—Sydney (UTS), when they write:

> A widely accepted definition of CBT does not currently exist.
>
> (Gonczi & Hager 1992, p.38)

Instead these writers recommend an approach to defining CBT based upon the seven criteria originally developed by the now defunct Commonwealth/State Training Advisory Committee (COSTAC). They argue that these criteria assist in determining the degree to which a particular course can be regarded as being CBT. They distinguish between three levels of CBT: low, medium or high.

A program is considered to be low CBT if it conforms to the following three criteria:

> A full list of competencies in the TAFE component (of the course) has been documented with specific standards and conditions for each competency.
>
> Assessment is based on the standards specified in the competency statements.
>
> Assessment is for the most part based on actual demonstration of skills.

To be regarded as medium CBT, a program must meet the three criteria above and add to these:

> Training is provided in a modular format which relates to specific competencies.

To be classified as high CBT under this scheme the course must have the four previous criteria and also:

> Students can be assessed for their competency at any time they believe they are ready.
>
> Students can obtain exemption from part of the training and move to the next unit of work on the basis of demonstrating competence.
>
> (Gonczi & Hager 1992, pp.38 & 39)

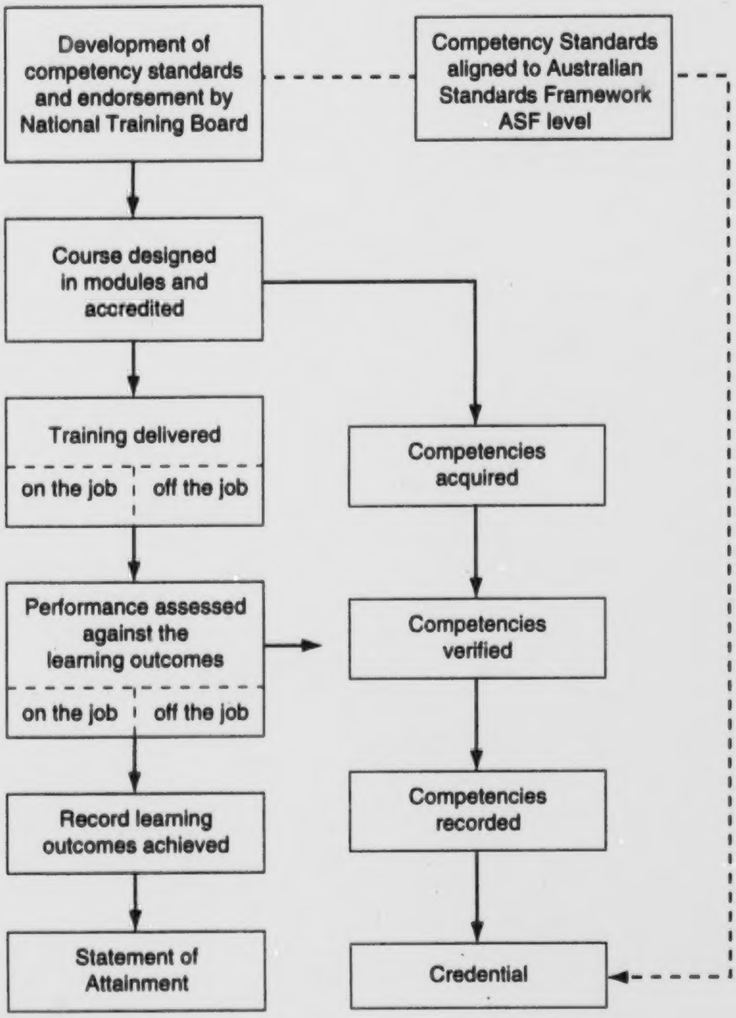
This is a descriptive definition and a check list for determining the degree to which a program is CBT. It introduces the notion of 'degrees of CBT-ness'. According to this approach it is less relevant to think about CBT as any one thing, rather it is more accurate to talk about lots of different versions of CBT.

However, as mentioned previously alongside this type of thinking, for some people CBT is considered to be a curriculum model.

CBT as a curriculum model

The curriculum model which is being used for all accredited training courses is competency-based. There seems to be a convention within the VET field of illustrating the curriculum model or process in the form of a flow chart.

Figure 1 Flow chart depicting the traditional CBT curriculum model


Development of competency standards and endorsement by National Training Board
Competency Standards aligned to Australian Standards Framework ASF level
Course designed in modules and accredited
Training delivered
on the job
off the job
Competencies acquired
Performance assessed against the learning outcomes
on the job
off the job
Competencies verified
Record learning outcomes achieved
Competencies recorded
Statement of Attainment
Credential

For simplicity this curriculum model can be considered as having three components. These are:

1. competency standards
2. the curriculum/accreditation document
3. the training delivery

Competency standards

These standards are used to describe a job role or occupation. In many ways these are like the duty statements in a position or job description. These statements describe what a person in a particular job is required to do and specifies the standard to which this should be done.

Competency standards relate to the job. They are devised by the industrial parties or their nominees (known as Competency Standards Bodies) and are very much an industrial relations matter. The industrial parties form a working party which researches and analyses the occupation under consideration. From this work, competency statements are written. However, it is not enough just to identify what needs to get done, so the statements are converted into competency standards. This happens when the standard to which the job needs to be done (what is considered to be competent) is written into the statement. Competency standards are benchmarked across occupations and industries using the Australian Standards Framework (ASF levels).

The ASF levels are derived from a framework of eight levels that has been developed to benchmark qualifications and credentials. The framework provides a bridge between the competency requirements of work and work structures and the vocational education and training system. The National Training Board has provided detailed descriptors for each of the eight levels. However, a thumbnail sketch follows. Levels 1 and 2 are thought about as operator level or equivalent and are often mentioned alongside entry level training. Level 3 is where people completing apprenticeships exit, that is jobs which are trade level or equivalent. Level 4 is post trade equivalent and levels 5 and 6 are para-professional. Levels 7 and 8 are considered to be the professions (National Training Board 1992).

Competency standards are written in a very specific format as Elements of Competency and each element has corresponding Performance Criteria. Elements that are similar are grouped together in clusters to form larger units of competency. The final draft of the competency standards is sent off to the National Training Board (NTB) for endorsement. The NTB checks to ensure that standards have been agreed to by the industrial parties, that they conform to the set format, that they are described in such a way as to relate to other competency standards in other occupations and industries, and that they include a full range of the aspects in the job. For this last purpose they use the job competence model developed by Mansfield and Mathews (1985). This model has four components: task skills, contingency management skills, task management skills, and role/job environment skills.

The curriculum/accreditation document

The second step in the curriculum development process is the course design and the writing of the curriculum/accreditation document. This step is the beginning of the training response and is most often carried out by a selected training provider from the field.

The curriculum/accreditation document does not state or describe how the training to achieve the learning outcomes will be carried out. In this document only the learning outcomes and assessment criteria are specified. Importantly, the training is inferred. The training program is designed backwards from the outcomes and the assessment criteria. It is for this reason that it is necessary to clarify what is being talked about as a curriculum.

The curriculum document is written in terms of outcomes. These documents are used to describe a credential, like a Certificate of ... or an Associate Diploma of ...As these documents describe the outcomes and they are aligned with a qualification or credential, they can be said to be a `specification for a qualification'. They provide a public record of what a person who qualifies for that particular credential can do. Theoretically, an employer or a union official could recognise a person as having specific skills knowledge and ability based on the fact that they had gained a certain qualification.

Associated with each of the learning outcomes is a series of assessment criteria. Just as the competency standards and elements are clustered into units of competence, learning outcomes which have a similar focus to one another are clustered together as modules.

Also similar to the competency standards above, the curriculum document is written following a specified format, using specified terms. This is all prescribed in the *User's Guide to Course Design for Competency-Based Curriculum* produced by VEETAC (1993). This template sets out the ten principles that the document must address to gain accreditation. Each state has authorised bodies who review the document and approve it for use. This procedure is called accreditation. Under a special agreement each state body now belongs and has a procedure which conforms to a national standard.

The training delivery

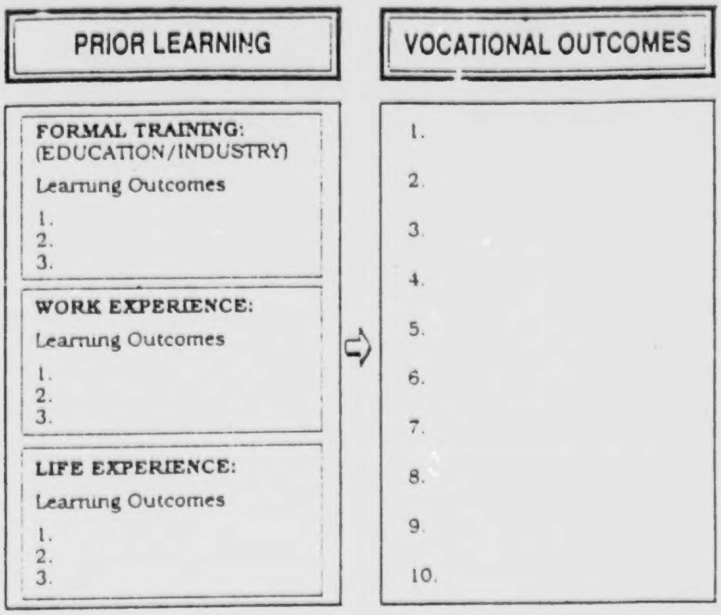
This is the third step in the curriculum process. In its widest sense training delivery is used to include all the ways that learning takes place or more accurately, the many ways of recognising and acknowledging the achievement of learning outcomes. This broader definition allows for the inclusion of the achievement of specified learning outcomes through other means as well as the particular training program such as on-the-job learning and experience through Recognition of Prior Learning (RPL).

Recognition of Prior Learning offers credit for learning that has been gained prior to entering the training program. In order to gain RPL, evidence must be produced which proves that the learner has previously achieved the required learning outcomes. This can have occurred in any way. The main consideration is the alignment of ability to perform and the achievement of specified learning outcomes. One of the key principles as listed in the National Framework for the Recognition of Training states:

> The recognition of prior learning will focus on the competencies a person has acquired as a result of both formal and informal training and experience—not how, when or where the learning occurred.
>
> (VEETAC Working Party on the Recognition of Training 1992, p.12)

The establishing of procedures and criteria for the recognition process involves consideration being given for formal industry training, work experience, and life experience.

Figure 2 A diagram which shows the match up that occurs between prior learning and the vocational outcomes



Source: Broadmeadows College of TAFE 1990, p.16

The training program must be open to appropriate tailoring for those who successfully gain credit for achieving learning outcomes as a result of RPL. The individual's training program becomes that which is necessary to achieve the remaining learning outcomes. This means that not all learners do the same program. The implication is that the initial training program is developed so that learners can achieve all the learning outcomes. By incorporating RPL the individual's program is modified and the sections of the course which are aligned to the outcomes which have already been achieved become redundant.

Likewise not all learners will need to achieve the learning outcomes under simulated conditions in a TAFE college as in off-the-job training. Instead some programs will be able to include aspects which can be achieved on-the-job in the learner's own workplace. In these cases arrangements will need to be made so that the assessment of these achievements is duly recognised by the certificating authority. The Competency Standards for Workplace Trainers and Workplace Assessors are being developed for just these reasons (CSB–Workplace Trainers 1992, 1993).

Choices for deciding the methods for delivery are providing a major area of competitiveness between training providers. Innovation in training delivery reflects this trend. One response has been the rise in prominence of `flexible delivery'.

Where has CBT come from?

The specific use of the term 'competencies' first appeared in the early 1960s and is associated with a report in the USA into the effectiveness of teacher performance. However, the competency-based approach owes its historical

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development to the 'objectives in education' movement (Davies 1976; Bowden & McMaster 1993). In this way, CBT can be said to have a history dating back to the last century. This history means that the current design and implementation of CBT with which we are familiar represents about the fifth generation of the competency/objectives movement. These generations are discussed in detail below.

The first generation of competencies mirrored the developments and application of scientific management to the workplace. These were formed in the context of the efficiency movement and included the models of training developed to support the waging of the First World War. This training was designed to provide 'farm hands' with the skills to support the machinery and equipment in what was considered to be the first mechanised war (Callaghan 1962; Davies 1976; Neumann 1979).

The second generation of competencies promoted the element of mastery learning. This approach emphasised achievement of success or mastery of preset content and separated this achievement from timetabling or scheduling, thus making it independent of time spent on the task. The major exponents were Washburne and Morrison who worked independently in developing educational programs based on these methods. This took place in the USA during the 1920s and 1930s (Block 1974).

The third variation was created by the application of psychology to the design and implementation of vocational education and training programs. The training methods developed for the armed services for the Second World War were highly formative. This stage provided CBT with its connection to behaviourism (Neumann 1979; Noble 1991). The work of B.F.Skinner, the development of programmed instruction and the use of teaching machines belong with this generation (Skinner 1954, 1968).

The fourth generation saw the development of behavioural objectives. These were written in a very specific form and provided descriptions for three related components. The first of these was the *performance*. This described the performance (or behaviour) that the learner would be able to demonstrate at the end of the training. This had a *standard* attached to it specifying the minimum acceptable level for that performance. Also listed were the tools, equipment or other necessary items which needed to be supplied, these provided the *conditions* under which the training was to occur. The work of Mager (1962) is fundamental to this stage as is also the development of systematic approaches to the design of instruction and systems for developing curriculum. This generation has an interesting association with approaches and methods for teacher training (performance-based teacher training). It was within this generation that the word 'competency' first appeared.

The fifth generation represents the present approach to CBT. Common throughout all the models for competency-based programs is the focus on outcomes. Further, these outcomes are always derived from an analysis of the work role desired. Therefore this becomes the first step in the course design process. Initially, the industrial parties establish competency standards for the work role or occupation under consideration. These become what is to be aimed for as the outcomes of a training program (National Training Board 1992). The curriculum document is developed in accordance with these statements and standards. These describe the learning outcomes that will be achieved and what the criteria will be for their assessment. Most often these are clustered together to form modules. Finally if the program is to be high CBT as described earlier then delivery and assessment needs to be organised in an appropriate manner. This is most often in the form of self-paced and/or individualised materials. It needs to be noted, though, that a course designated as being CBT does not necessarily mean that it is or should be self-paced.

Further developments are presently occurring with the implementation of CBT. These include the tandem implementation of other compatible training strategies. Prevalent amongst these are: recognition of prior learning (RPL) delivery on-the-job, approaches that integrate a number of these components such as RPL, on-the-job and TAFE delivery and finally, the development of strategies for flexible delivery and flexible learning.

Why has CBT re-emerged now?

This is a very political question which goes to the crux of the matter. What is very important for TAFE teachers to understand is that there is a very lively debate which surrounds the implementation of CBT (Collins, M. 1983, 1987; Collins, C. 1993; Jackson 1993, 1994). In fact one of the characteristics that has always been associated with CBT is that it is highly contentious as an approach to education and training. Quotations are set out below from two vocational education researchers which illustrate this tension.

John Foyster, a researcher at the National Centre for Vocational Education and Research (NCVER), upholds government policy when he writes:

> Competency based training is spreading, despite the handicap of additional planning, because it usually works much more effectively to bring employees to the required skill levels than do traditional methods.
>
> (Foyster 1990, p.1)

> ... why adopt competency based training? Because those who have adopted it have found that CBT produces more skilled, more satisfied workers more quickly.
>
> (Foyster 1990, p.2)

> ... competency based training makes more sense for all of those involved.
>
> (Foyster 1990, p.3)

Presented here in direct contrast to these comments is the opening extract from an article by Nancy Jackson, a Canadian educator. She writes:

> ... there exists nearly two decades of scholarship, including theoretical critique and empirical research originating in philosophy, psychology, linguistics, education and sociology, which argues in various ways that the competency paradigm has not and probably will not 'improve learning' in most of the educational contexts where it has been applied ... To borrow words from Henry Giroux, it appears to 'begin with the wrong problems ... misrepresent the problems it endorses and ... advocate the wrong solutions' (1984, p.188). Recent British critics have called it a 'theoretically and methodologically vacuous strategy' for upgrading the vocational education and training system (Hyland 1992, p.35) and one that a 'careful educator would be well advised' to avoid (Ashworth & Saxon 1990, p.18). Yet the paradigm persists, indeed proliferates on several continents, as new generations of the competency model are introduced, all claiming to benefit from the 'mistakes of the past' (Collins 1987; Gamson 1979), all claiming to be the new panacea in education and training reform.
>
> (Jackson 1994, p.135)

Clearly these two well-respected educators are expressing diametrically opposed viewpoints with regard to CBT, thereby illustrating the clash of discourses which is occurring in the vocational education and training field. This leads to another interesting issue on how this information on CBT is being presented to teachers. Are teachers being encouraged to ask questions, or like examples of transmission pedagogies are they being supplied with 'the good oil' and the right answers? Are teachers learning about CBT by being supplied with the 'right' answers or are they being encouraged to engage dialogically and even to question the answers on offer, in a similar way to that in which Ira Shor (1992) suggests teachers should teach? If we accept the dominant discourse on CBT we might well be satisfied that we are implementing CBT simply because 'implementation of CBT is a government priority' (Moorabbin College of TAFE 1993, p.7).

This explanation is seen to be less contentious and certainly avoids any mention of tension or a debate. These types of explanations attempt to provide a politically neutral position. They present CBT as unproblematic and the issue for teachers is simply how do I implement this approach, not why is it being imposed upon us at this time? However, by failing to acknowledge any disadvantages or adverse political agenda, these presentations leave themselves wide open to criticism on withholding information, dismissing concerns and trivialising the debate. Instead it should be argued that professionals such as teachers must be given access to both sides of the discussion and offered the opportunity to participate in the debate should they wish to do so.

An oppositional discourse on CBT might argue that competency-based training in its present form aligns exactly with the needs of the industrial parties and the state, the three most powerful parties amongst the stakeholders. Such a criticism might refer to political interests and power relations. Such a case might begin with the fundamental question that needs to be asked of any curriculum: whose interests does it serve?

How does CBT connect with the political agendas of the powerbrokers?

In reviewing these agendas it is important to consider the nature of the workplace, the site for which this learning is intended. Fundamental to the political analysis of the workplace is the transaction that occurs over labour. Workers sell their labour to employers who purchase it. The organisation of workers or the labour process from an employer's point of view is about extracting and converting labour or the potential to do work into work actually performed. Some labour processes convert this more efficiently than others. The production and assembly lines epitomise these attempts, as they do also the resistance of the workers.

Richard Hyman (1975) in his work on industrial relations, describes the asymmetrical relations between employers and employees:

> The obligations undertaken by the employer are relatively precise and specific: he [sic] agrees to pay a specific wage or salary ... the obligations on the worker, by contrast, are imprecise and elastic ... the employee does not agree to perform an exact amount of physical or intellectual work ... the employee surrenders his capacity to work ... it is the function of management, through control, to transform this capacity into actual productive capacity ...
>
> (Hyman 1975, p.24)

Competency-based training allows the employer to have a greater degree of control over the labour purchased. Workers come to the transaction with public credentials which specify what it is that they can do. They have in fact been certified against very specific criteria as being able to do or perform very specific tasks and duties, thus alleviating some of the uncertainties that have existed in the past. Trade unions for their part as organised labour representatives have been a part of setting criteria specifying job titles, specifications of duties, and designated skills and knowledge which go with these jobs. The criteria for classification and remuneration have been made overt, thus making the claim for recognition and classification a matter of comparison against preset and agreed criteria.

The involvement and implication of the industrial parties is particularly important in times when unemployment is high and/or increasing. When trainees are leaving training institutions like TAFE colleges and obtaining appropriate jobs then the training providers are less likely to be asked to account for the vast sums of government money that are invested into this sector. However, when the trainees do not obtain suitable work questions begin to be asked. CBT helps the bureaucrats responsible for training cover themselves (Jackson 1993).

Training under this approach is designed to satisfy competency standards developed by the industrial parties. It is not a TAFE function. The standards are checked over and endorsed by the National Training Board in order to ensure consistency. The graduate comes out of this system with knowledge that has been jointly designed by the very people that frame up the wage-labour transaction.

It needs to be emphasised, though, that missing from the determination of the learning process are those who are primarily involved: teachers and learners who in the case of work-related learning can be thought of as the ones doing the work. The design of CBT provides for and implicates the major powerbrokers: employers, unions, and the government and training system bureaucrats. Yet under the label of workplace reform it is imposed upon those involved in the learning process: teachers and students.

Conclusion

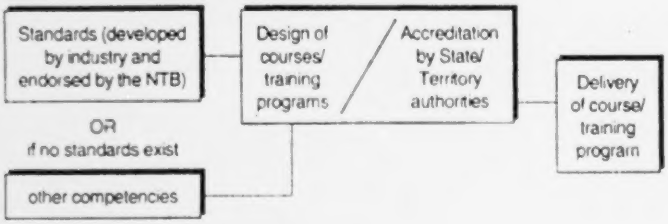
From my perspective as a TAFE Curriculum Officer, I tend to move between and express a number of positions on CBT. From a philosophical and theoretical point of view I am opposed to the imposition of this approach to training and regard it as an attempt by outsiders to control the outcomes and processes of learning. I see CBT as an attack on teacher professionalism. Further it seems something of a contradiction that these measures should occur under the rhetoric of reform. This alerts me again to the need to go beyond the talk. What is very apparent in the literature on CBT is the missing voice of the practitioner, instead the advocacy and debate seems to be happening amongst and emanating from academics and policy people, not from those whose job it is to deal with the day-to-day realities of the approach.

Rather ironically this type of reform leads to a clash of discourses and hinders those teachers and educators who explore what it means to practice more critical approaches to pedagogy. The work of prominent Canadian academics like Michael Collins in adult education and those of Nancy Jackson in the field of work-related learning provide excellent scaffolding to those looking to critique CBT, as does also the work of those educators working from a base within critical pedagogy.

In contrast to my claim to an oppositional position on CBT, my day-to-day work within TAFE makes it very clear that an overt oppositional stance is not practical. This is due to the extent that CBT is advocated by the government's policy people and training system bureaucrats and has become entrenched as the dominant discourse. A pragmatic position then is to look for ways in which educators can do their job the best way they know how, exploring the boundaries and making creative interpretations of what constitutes competency-based training.

This strategy of change from within is possible because of the loopholes and space that exist. Figure 3 is adapted from the curriculum model described by Lorraine Wheeler from the National Training Board.

Figure 3 The three components of CBT


Standards (developed by industry and endorsed by the NTB)
OR
if no standards exist
other competencies
Design of courses/ training programs
Accreditation by State/ Territory authorities
Delivery of course/ training program

Source: adapted from Wheeler 1993, p.40

It is my belief that the three components in the model can be either tightly or loosely coupled to one another. What this refers to is the way that the design and interpretation of a stage resembles the previous one. The competency standards are the basis for the design of the training course, however, the course design does not have to be absolutely determined or a literal interpretation. This means that an opportunity or space exists for creative interjection in the interests of providing a better quality educational and learning experience. Similarly, the coupling of the training delivery to the course design relies on educational interpretation. The curriculum document which is the product of the second stage specifies the learning outcomes and the assessment criteria; it does not specify how these outcomes are actually going to be achieved. It states what is to be achieved not how it is to be achieved. This allows an opportunity for further educational input from those involved in the learning process: the students and the educators.

After doing some reading on discourse analysis and critical language awareness (Fairclough 1992), I understand that texts and discourses can in the first instance work to position the reader in relation to the arguments of the topic. An example of this is whether you would call the members of an organisation like the IRA (the Irish Republican Army) freedom fighters struggling against British imposed oppression, or a group of murdering terrorists. However, in the end the linguistics and presentation of the arguments can only position you so far and from there you have to make up your own mind.

The readings presented in this volume attempt to lay out and be representative of the discourse on CBT: from here it is up to you. The missing gap is the voice of the practitioner and the reports and reflections on the day-to-day experience of implementation and working with the competency-based approaches to training, but this is a gap which exists in the literature. An issue that is worth thinking about in its own right is: why is the advocacy and debate on CBT being carried out by people whose job it is to develop and sell these initiatives and those within the safety of higher education?

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References

ACTU / TDC (1987), *Australia Reconstructed: ACTU / TDC Mission to Western Europe—A Report by the Members*, AGPS, Canberra.

Australian Education Council (1991), *Young People's Participation in Post-Compulsory Education and Training: Report of the Australian Education Council*, (The Finn Review), AGPS, Canberra.

Australian Education Council/MOVEET (1992), *Putting a General Education to Work*, (The Mayer Report), AGPS, Canberra.

Ashworth, P.D. & Saxon, J. (1990), 'On "Competence"', *Journal of Further and Higher Education*, Summer, pp.3–25.

Block, J.H. (ed.) (1974), *Mastery Learning: Theory and Practice*, Holt, Rinehart & Winston, New York.

Broadmeadows College of TAFE (1990), *RPL Principal Report: Ford/TAFE Articulation Project*, State Training Board of Victoria, Melbourne.

Brown, M. (1993), Competency: The basis of a 'flexible' new technology for the formation of human capital, unpublished MEd Research Paper.

Bowden, S. & McMaster, G. (1993), *Implications for Higher Education of a Competency Based Approach to Education and Training*, AGPS, Canberra.

Confederation of Australian Industry (CAI) (1991), *CBT: Proposals for the Australian Vocational Education and Training System*, CAI, Melbourne, July.

Callaghan, R.E. (1962), *Education and the Cult of Efficiency*, Chicago University, Ill.

Collins, C. (1993), *Competencies: The Competencies Debate in Australian Education and Training*, Australian College of Education, Canberra.

Collins, M. (1983), 'A critical analysis of competency based systems in adult education', *Adult Education Quarterly*, vol.33, no.3, pp.174–83.

Collins, M. (1987), *Competence in Adult Education*, University Press of America, Lanham.

CSB–Workplace Trainers (1992), *Workplace Trainer Competency Standards*, CSB–Workplace Trainers, Melbourne.

CSB–Workplace Assessors (1993), *Workplace Assessors Competency Standards*, CSB–Workplace Trainers, Melbourne.

Davies, I. (1976), *Objectives in Curriculum Design*, McGraw Hill, London.

Employment and Skills Formation Council (1992), *The Australian Vocational Certificate Training System*, (The Carmichael Report), AGPS, Canberra.

Fairclough, N. (ed.) (1992), *Critical Language Awareness*, Longmen, London.

Fairclough, N. (1992), *Discourse and Social Change*, Polity Press, Cambridge, Mass.

Foyster, J. (1990), *Getting to Grips with Competency based Training and Assessment*, TAFE National Centre for Research and Development, Adelaide.

Giroux, H.A. (1984), 'Public philosophy and the crisis in education', *Harvard Educational Review*, vol.54, no.2, pp.186–94.

Gonczi, A. & Hager, P. (1992),'The policy context for vocational education and training', in A. Gonczi (ed.), *Developing a Competent Workforce*, NCVER, Adelaide.

Hyland, T. (1992), 'NVQs and the reform of vocational education and training', *Journal of the National Association for Staff Development*, no.26, pp.26–36.

Hyman, R. (1975), *Industrial Relations: A Marxist Inroduction*, Macmillan Press, London.

Jackson, N. (1993), 'Competence: A game of smoke and mirrors?', in C. Collins (ed.), *Competencies: The Competencies Debate in Australian Education and Training*, Australian College of Education, Canberra.

Jackson, N. (1994), 'If competence is the answer, what is the question?', in Deakin University, *A Collection of Original Essays on Curriculum for the Workplace*, Deakin University, Geelong, Vic., pp.135–49.

Mager, R. (1962), *Preparing Instructional Objectives*, Fearon, Belmont, Calif.

Mansfield, B. & Mathews, D. (1985), *Job Competence: A Description for Use in Vocational Education & Training*, Further Education Staff College, Blagdon.

Mawer, G. (1992), 'Developing new competencies for workplace education', *Prospect*, vol.7, no.2, pp.7–27.

Moorabbin College of TAFE (1993), *Competency Based Training: An Overview—Professional Development Resource Package*, Moorabbin College of TAFE, Vic.

National Training Board (1992), *National Competency Standards: Policy and Guidelines*, 2nd edn, AGPS, Canberra.

Noble, D. (1991), *The Classroom Arsenal: Military Research, Information Technology and Public Education*, Falmer Press, London.

Neumann, W. (1979), 'Educational responses to the concern of proficiency', in G. Grant (ed.), *On Competence: A Critical Analysis of Competence Based Reform in Higher Education*, Jossey Bass.

Shor, I. (1992), *Empowering Education: Critical Teaching for Social Change*, Chicago University Press, Chicago, Ill.

Skinner, B.F. (1954), 'The science of learning and the art of teaching', *Harvard Educational Review*, no.24, Spring, pp.86–97.

Skinner, B.F.(1968), *The Technology of Teaching*, Appleton-Century Croft, New York.

State Training Board (1991), *Competency Based Training: A Systemic Approach*, Statement No.2, Melbourne.

VEETAC (1993), *User's Guide to Course Design for Competency Based Curriculum*, ACTRAC, Melbourne.

VEETAC Working Party on the Implementation of Competency Based Training (1992), *Assessment of Performance under Competency Based Training*, VEETAC, Canberra.

VEETAC Working Party on the Recorgnition of Training (1992), *Nationally Recognised Training: Bringing it Together*, VEETAC, Canberra.

Wheeler, L. (1993), 'Reform of Australian vocational education and training: A competency based system', in C. Collins (ed.), *Competencies: The Competencies Debate in Australian Education and Training*, Australian College of Education, Canberra.

SECTION 1

WHAT IS COMPETENCY-BASED TRAINING?

1

COMPETENCY-BASED EDUCATION: A BANDWAGON IN SEARCH OF A DEFINITION[1]

WILLIAM G. SPADY

W.G. Spady, 'Competency based education: A bandwagon in search of a definition', *Educational Researcher*, vol.6, no.1, 1977, pp.9–14.

In September, 1972, the Oregon State Board of Education passed new minimum graduation requirements for students entering ninth grade in the Fall of 1974 and new minimum standards for local school districts focused on the new requirements in 1974. The thrust of these new requirements and standards involved the introduction of three domains of 'survival level' competencies as minimum conditions for high school graduation by 1978: personal development, social responsibility, and career development. In addition to 'passing' a normal complement of high school courses, students will be obligated to master locally determined minimum standards in these three 'competency' areas before receiving a diploma. School districts are required to facilitate students' progress in these areas by providing adequate mechanisms for needs assessment, goal setting, instruction, evaluation and record keeping.[2]

Underlying the Oregon action were two years of public hearings that explored the alleged inability of prevailing school curricula, practices, and standards to assure that youngsters completing twelve years of formal education could survive economically and socially as independent young adults. Implicit in the Oregon discussions was a challenge to the validity of using time and course credits as bases for certifying student accomplishment and the relevance of current curricula to the life-role demands youngsters would face after leaving school. Similar concerns have, of course, been voiced in most other states.

Although largely unintended and unanticipated by those involved, the 1972 Oregon regulations provided the first significant nudge that set in motion across the nation over the next four years a series of actions by state level policy makers and administrators to consider, formulate and implement regulations and procedures that they now associate with the term Competency Based Education (CBE). With over twenty states currently considering or implementing a range of 'CBE' schemes for their elementary or secondary schools, this uncoordinated movement is rapidly transforming into a bandwagon that promises to be the Great American Educational Fad of the 1970's.[3] And like most self-respecting fads in American education over the past few decades, this CBE bandwagon cannot be accused of having put its conceptual house in order before launching on its uncharted parade route and accumulating a vast and lively following.

Aside from universal beliefs in the desirability of school system accountability and student 'competence', the adherents and practitioners of current elementary and secondary school CBE efforts are marching (or parading) in different uniforms to different drummers playing different tunes.[4] Basic definitions, conceptual clarity, and analyses of the organizational and social implications of various CBE approaches are badly needed.

Toward an operational definition of CBE

According to Hathaway (1976) our current conceptions of (and confusion about) Competency Based Education have emerged from two distinctive approaches to defining and labelling the phenomenon. The *descriptive* method, pursued by authors such as Schmieder (1974) and Trivett (1975), examines programs that describe themselves as Competency Based and seeks to discover the elements they share in common. The enumeration of those common elements serves as the definition of CBE *in practice.*

The work of Glick, Henning, and Johnson (1975) and of Howsam (1972) represents the *a priori* or *prescriptive* approach, which takes a set of meanings or conditions as given and derives a definition of the phenomenon from them. This leads to a *theoretical* definition of CBE which serves as a criterion or reference against which practice can be measured.

The analysis that follows is largely *prescriptive* in character and substantially reflects the consensus of a number of acknowledged experts in the field as to the theoretical constructs implied in CBE and the characteristics that differentiate it from associated practices such as competency based teacher education, mastery learning, individualized instruction, and applied performance-based testing.[5] It is offered (1) as a way of providing greater conceptual clarity to the meaning of CBE than is currently present, (2) as a framework against which the multiplicity of statewide endeavors can be examined and identified, and (3) as a set of elements whose political, sociological, and educational implications need to be carefully scrutinized. To the extent that bias and advocacy are evident in the analysis, they are loaded in a direction supporting a vision of students as active agents in the educational process, not as passive recipients of society's concern with their accountability, custody, socialization, or training.

Stated briefly, this analysis treats CBE as: *a data-based, adaptive, performance-oriented set of integrated processes that facilitate, measure, record and certify within the context of flexible time parameters the demonstration of known, explicity stated, and agreed upon learning outcomes that reflect successful functioning in life roles.* Within this intensely compacted but elaborate definition are six critical elements that require special delineation and discussion. They are: outcomes, time, instruction, measurement, certification and program adaptability. Taken together, the analysis of these six elements offered below constitutes a description of an elaborate and full-blown CBE program—one whose adequacy and mission extend beyond the prevalent and narrow demands for minimum student basic skill proficiencies.

Yet it is useful to note how these six elements relate to and expand upon what could be considered the four *absolute minimum* defining characteristics of

CBE in its most basic and rudimentary form. These four features are imbedded in a school system's certification and opportunity structures.

Outcomes

Perhaps the most fundamental aspect of the extended definition of CBE involves the concept of *competency.* While admittedly a stringent condition to impose on school systems accustomed to conducting most of their instruction and evaluation in closed classrooms with textbooks and paper-pencil tests, the definition of a competency used here renders the concept of *life-roles* and their attendant activities as *the* prime movers in framing outcome goals, designing curricula, providing instruction, and measuring student performance. This approach, therefore, defines *competencies* as indicators of successful performance in life-role activities (be they producer, consumer, political citizen, driver, family member, intimate friend, recreational participant, or life-long learner) and distinguishes them from the discrete cognitive, manual, and social *capacities* (such as reading and computational skills, speaking ability, and motivation) that, when integrated and adopted to particular social contexts, serve as the *enablers* or *building blocks* on which competencies ultimately depend. There are, of course, also important capacities such as sensitivity, awareness, and the appreciation of beauty which may serve as valuable *enrichers* of experience in roles that are more intrinsically referenced and that do not necessarily imply mastery or success in relation to externally-referenced standards.[6] However, it is the enabler rather than enricher conception of capacities that guides most statewide policy demands for the demonstration of student proficiencies, even though neither deals explicitly with the exigencies of real life-role demands.

Hence, the first fundamental decision that policy makers must confront when dealing with CBE is whether the letter C stands for Competency, which implies the framing of outcome goals in applied life-role terms and making major changes in curricula, instruction, and evaluation procedures, or for Capacity, which frames outcome goals in terms of discrete, more narrowly focused abilities and implies fewer changes in the existing curriculum.[7]

Given that such a determination is made, the foregoing definition implies that the outcome goals of a CBE process be stated in terms that are clear and explicit with regard to the criteria of performance that are expected and that they be known and agreed upon by all those with a direct interest in the student's educational progress. In other words CBE takes the surprises out of the instructional-certification process by encouraging collaborative decision making regarding goals, by placing these goals 'up front' as guides for both teachers and learners, and by attaching those goals to explicit and reasonably concrete behavioral referents.

The certification structure of a system defines the standards and framework for assessing, recording, and crediting the experience and accomplishments of students for program placement, promotion, and graduation purposes. In order for CBE to be present at all, the bases for determining credit must: (1) be reflected in clear and specific criterion-referenced outcome statements that are (2) directly embodied in the instruction and evaluation of students and (3) known by them prior to their engagement in a given arena of work. In short, the measurement and certification of success in a CBE program occur when students accomplish known and clear criterion-based standards (4) in the context of an opportunity structure that allows for multiple exposures to both instruction and evaluation if necessary. Mechanisms that allow students to recycle through both instructional and assessment experiences without undue delay or penalty are essential to CBE.

This means, then, that the kinds of outcomes to be pursued, the decision-making processes for determining and pursuing them, the range of options available to students in terms of instructional and evaluation agents, means, and settings all constitute inherent program variations that extend and embellish the four essential features of CBE. These important elements in more fully elaborated conceptions of CBE are discussed below.

While the danger exists that such a goal-directed approach might leave no room for flexibility, spontaneity, or individuality for either teachers or students, there is no inherent need (as distinct from tendency) for CBE to be deterministic. The crux of this problem lies in two areas: the linkage between goals and formal certification requirements and the variety of instructional approaches and evaluation means available for facilitating and measuring goal attainment. CBE certification requirements can build upon both competency and capacity definitions of outcomes and allow for electives and options in much the same way as traditional course-credit system do. In addition, a variety of means can be used to facilitate success in a given outcome area. If properly conceived, CBE programs need not be rigid, mechanistic, and monolithic.

Time

One critical factor in this definition of CBE that inherently implies flexibility and encourages individualization is time. In this respect, time in a CBE framework operates similarly to Carroll's (1963) formulation which serves as the basis of what Block (1970 and 1974) and others refer to as Mastery Learning (ML). Essentially, both ML and CBE emphasize the primacy of the outcome goal as the fundamental concern of the educational enterprise and treat time and opportunity as elements that serve those goals. This requires that time be used flexibly in terms of when, how long, and how often opportunities for both instruction and evaluation are provided. Single opportunities for evaluation and instruction determined within reasonably fixed time parameters have strong and inherent selection biases that serve to emphasize differences among students in relation to often variable standards. This runs counter to the ML and CBE emphases on getting students to reach definite goals, even if more (or less) time than 'normal' or more than one instruction-evaluation opportunity is required.

Given the major shifts in the application of time and definition of standards just discussed, CBE seems to call into question three fundamental bases of traditional school organization and practice: (1) the meaning and validity of semesters, quarters, and class periods as bases for organizing instruction and conducting evaluation for certification purposes; (2) the meaning of a course—which typically consists of as much content as an instructor can fit into a given number of class periods for most students within a given quarter or semester; and (3) grading practices that reflect comparisons across students, within semesters, and across teachers and classrooms without a criterion base as a standard. In light of these points, the shift implied by CBE from time-based to outcome-based principles for school organization presents challenges to established and time-honored practices that may be difficult if not impossible to accommodate.

Instruction

The role of instruction in CBE is central to the attainment of the outcome goals that guide its purposes. CBE does not consist of evaluation and certification systems alone but depends on the instructional system to facilitate *all* students' opportunities for meeting certification standards. In order to promote attainment of these standards, CBE schools should deliberately employ instructional means that are known, explicit, agreed upon, readily available, and closely tied to recognized outcome goals.

Note that the close articulation of goals and means does not proscribe flexibility and choice among the range of experiences and activities that might promote success in a given area. Instead schools can provide a variety of instructional activities from which students can choose in pursuing a given outcome goal.

Nonetheless the choice of goals may have a major impact on established instructional practices, particularly when life-role competencies imply exposure and activities that are either inadequately provided by or poorly simulated in classroom or formal school contexts and when teaching staffs may lack the competence or versatility to facilitate certain goals. Essentially the more closely outcome goals reflect competencies that require problem solving, personal initiative, and social skills in connection with life-roles that are broader than those of student, worker, or consumer, the greater is the need to expand the instructional program beyond the walls of the school and to tap as instructors resource specialists outside the formal school staff.

Measurement

Although the choice of CBE outcome goals may impose major constraints and demands on school systems with respect to reconceptualizing, redesigning, and providing adequate curriculum and instruction, the problems are minor compared to those related to the reliable, valid, and timely measurement of applied role performance. The technology surrounding the assessment and measurement of success in life role activities is only in its infancy, even though the rush toward adopting CBE-like programs is upon us.[8] Those systems seriously concerned with the quality of data they will accept as evidence of competency performance will have to pay a steep price in time and personnel resources required for the task.

Allowing, however, that these technical obstacles to adequate measurement can somehow be surmounted, administrators of CBE programs will still face major difficulties in implementing a responsive system of evaluation. First, the fundamental groundrules involving the role of student evaluation in schools will have to be rethought and adapted to the framework of CBE criteria discussed above. This means, for example, that both the criteria for student performance and the particular means of measuring them need to be explicit, known, agreed upon, and criterion-referenced. When accompanied by a record keeping system calibrated around specific outcome goals, these two things fundamentally undermine the potential use of evaluation (testing and grades) as a mechanism for the control of student behavior by specifying in advance the criteria and evidence that can be used in assigning grades and making placement decisions. The use of assignments or tests as surprises or threats is dramatically reduced when multiple opportunities for both instruction and evaluation are allowed and when the expectations for performance are clear and known by students in advance. Clearly, CBE reduces the discretion of individual teachers in determining both the criteria to be used in evaluation and the uses to which the latter can be put.[9]

A second additional obstacle to implementing a CBE measurement system has to do with the complexity of coordinating a multiple-opportunity system of instruction and evaluation. The more frequently opportunities for evaluation are provided, the more complex will be the tasks of coordinating and assigning students to appropriate instructional experiences based on these results. This is likely to stimulate pressures for routinization of these tasks as a matter of practical survival, despite the inherent flexibility implied by the CBE concept.[10]

Certification

If there is any element in this basic definition of CBE that is unique to the concept, it is that the verified demonstration of competencies constitutes the *exclusive* criterion for student success, program placement, certification, and graduation. This means simply that when other certeria such as attendance and other means of compiling 'credit' are used as bases for record keeping and determining graduation status, then a program is not fully competency-based. In fact, such is the case in Oregon where districts have the option—but are not required—to waive normal attendance requirements and students must compile 21 course credits in order to graduate, whether those credits are earned through competency demonstration or not.

Note, however, that the reverse of this proposition also holds; that is, just because a program demands demonstration of some kind of proficiency as a criterion for exit (i.e., C-Based *Certification)* or periodically administers criterion-referenced tests to its students for diagnostic purposes (i.e., C-Based *Measurement)* does not mean that a fully integrated C-Based *Instruction* program is also present. While each may exist in some programs independently of the others, C-Based *Education* occurs only when CBI, CBM, and CBC are simultaneously present and closely integrated around specified outcome goals.

Three items deserve special emphasis at this point. One, there is an obvious need for a more precise and standardized language system that reflects the diverse approaches to employing 'CBE-type' programs and practices in school systems. Distinguishing among competencies, capacities, kinds of life-roles, instruction, measurement, and certification is only a first step in this process.

Two, when student certification is truly either Competency or Capacity Based, the meaning and utility of student attendance fundamentally changes. Where, when, how long, and with whom students engage in the activities that facilitate their learning and development are of less moment in a CBE context than is their ultimate responsibility for reaching given outcome goals. This implies that a major shift in student-school relationships may occur under CBE arrangements; that is, schools can become less preoccupied with the formal custody and control of students as the latter will be compelled to assume more authentic responsibility for their own learning and ultimate accomplishments. With CBE, graduation is no longer a matter of hanging around for 12 years and staying out of trouble.[11]

Three, the basic tension in a CBE certification structure between 'required minimums' and 'desirable maximums' is probably unavoidable. Inherent in any certification process is the establishment of a performance floor which students must meet in order to receive institutional endorsement. But where exit rules allow one to receive a diploma once those minimums are met, the minimums may also serve as the maximums, and many students may choose to leave as soon as possible. This issue is particularly troublesome for institutions of higher education that are accustomed to demanding more than minimums as admissions criteria, even though traditional letter-grade course-credit systems have provided little solid indication of what a student's actual performance capabilities are in any given area. It is likely, therefore, both that the outcome goals required for graduation in CBE systems will eventually emerge from a tense compromise among the many constituencies in a community regarding the necessary, the desirable, and the possible, and that C-Based diplomas will be viewed with initial if not undying skepticism by colleges and universities.

Program adaptability

The final element in the definition of CBE concerns the central role of student performance data in the management and evaluation of all elements in the system. The major assumption underlying this proposition is that students' performance in relation to outcome goals may be a reflection not only of their ability and endeavor but of the adequacy and appropriateness of the instruction provided, the evaluation tools used, or the goals themselves. Its corollary is that a CBE system is never finally and officially 'in place and permanent' but must remain constantly sensitive to the need to change indicators, procedures, or settings in the face of evidence that student progress is faltering.

In short, CBE programs require mechanisms that collect and use student performance data as the basis for diagnosing weaknesses and necessary remediation not only for students but for themselves as well. It is here, then, that the delicate balance between student and system accountability is most apparent and the ultimate vitality of a system will be reflected.[12]

The status of state CBE efforts

The foregoing discussion leaves little doubt concerning the scope and magnitude of changes in school system procedures that are implied by the implementation of a 'full-blown' CBE program. Upon reflection it is also apparent that this conception of CBE satisfies the five conditions implied in the concept of an educational reform (Stout and Spady, 1976) i.e., that major changes are required in (1) the structure and allocation of system resources, (2) what is learned and mastered by students, (3) the distribution of power and decision-making among the constituencies connected with the system, (4) the nature and relations among the basic functions of the system, and (5) the patterns of access to and outcomes of schooling.

Realistically, however, this conception of CBE will be extremely difficult to implement even if state legislatures were to mandate it word for word, since neither current funding provisions nor the orientations of practitioners seem conducive to undertaking such sweeping reforms. Therefore, it is no surprise to find that almost all state efforts in this direction appear far more limited in conception and scope. According to information compiled by Clark and Thompson (1976), no states outside of Oregon appear to use language consistent with a life-role conception of competency in either their current or pending regulations pertaining to mandated student proficiencies. The possible exceptions refer to the need for occupational and consumer mathematics skills. However, within the next year New York and Pennsylvania may make more decisive moves toward implementing approaches to schooling more fully resembling this conception of CBE.

Almost all other states are concerned either with capacity-based outcomes in limited basic skill areas (e.g., Arizona, Connecticut, Florida, Georgia, Idaho, Louisiana, Maryland, Nebraska, and Tennessee), a slightly broader set of subject area proficiencies (e.g., California, Texas, Virginia, and Washington, DC), or as-yet-undefined or else locally determined options concerned with some kind of minimum proficiency requirements (e.g., Colorado, Kansas, Michigan, and New Jersey). As of October 1976, in only two cases, California and Florida, could students leave school in less than twelve years with a diploma once they passed a state-determined proficiency exam (the Oregon regulations allow local districts to determine whether early graduation will be allowed), and in only eight states (California, Colorado, Georgia, Nebraska, New Jersey, Oregon, Pennsylvania, and Virginia) do either current or pending regulations seem to suggest that some kind of instructional experiences need to be provided students to facilitate their performance in desired outcome areas. This is not to say, however, that these states endorse a fully integrated goals-instruction-evaluation-certification approach to schooling; in most cases the policy language merely assumes that instructional support should accompany evaluation demands.

Aside from Oregon, five states, California, Maryland,[13] Michigan, New York, and Pennsylvania, deserve particular attention over the next few years as sites where current thinking about substantial proficiency or competency-based reforms suggests real promise.

California is just beginning its second attempt to pass legislation that enacts several provisions of a 1975 Commission Report on the Reform of Intermediate and Secondary Education (RISE). Included in the RISE legislation is a provision that the reform plans of local districts include mechanisms that assure student promotion and program placement on the basis of demonstrated proficiencies. Although the 1976 RISE legislation was vetoed by the governor after passing the state legislature, it is expected to be reintroduced in the 1977 legislative session. In its place, however, the legislature did enact a far less expansive and expensive bill authorizing the creation by 1978 of proficiency standards that must include, but not necessarily be limited to, reading comprehension, writing, and computational skills.

Michigan, on the other hand, has no state legislation supporting CBE but a climate that has allowed a number of districts to experiment with criterion-based, open-time instructional and certification systems. These efforts are expected to continue and expand.

During the 1976-77 academic year the New York State Department of Education will be working closely with interested districts in shaping proposals and plans for the implementation of alternative models of CBE. This gradualist approach to working through some of the difficulties associated with CBE implementation on a pilot basis may prove highly profitable in the long run for those districts committed to substantial system changes, but as yet no specific outcome goals have been selected by interested districts.

Pennsylvania, in a fourth case, has been exploring a concept of system reform with a definite Competency Based orientation. Originally called Community Learning and currently named 'Project 81,' this program would be centered around facilitating student capacities and competencies in five major areas of activity, with a stress on participation outside the school building where appropriate. The areas include a broad range of basic skills, the worlds of work and leisure, community governance and involvement, and a broad range of citizen and personal survival skills. Initial implementation would proceed along participatory lines similar to those in New York State.

Overall, then, there is considerable evidence that states are jumping on a CBE-like bandwagon under the assumption that toughening certification standards for students will satisfy the public's need for school system accountability. What most of these new policy adoptions seem to overlook is the fact that improving the social utility of student outputs may require a reconsideration of the kinds of goals around which the instructional program is built and the structures and mechanism it creates to achieve them.

Notes

1 I am deeply indebted to Michael Cohen, H. Del Schalock, and Walter E. Hathaway for insights that have contributed significantly to this paper, and to Billie A. Norris for expert assistance in the preparation of the manuscript.

2 The original 1974 Oregon standards allowed for a bienniel review by the state Board of Education and appeared under the title *Minimum Standards for Oregon Public Schools:* December, 1974. The recently revised standards are available under the title *Oregon Administrative Rules (Minimum Standards):* June 1976. Except for changes in compliance dates, the substance of the two documents is very similar.

3 Although this current movement has been influenced by many of the concepts and approaches used in the widespread adoption of Competency Based Teacher Education in the early Seventies, it is distinctively concerned with the achievements of elementary and secondary school students. Evidence of the interest in mandating and measuring 'minimal competencies' was reflected in a March, 1976, conference sponsored by the National Assessment of Educational Progress in Denver, attended by a surprising 125 participants from 32 states.

4 This diversity of conceptions and approaches is apparent not only from the various state regulations described by Clark and Thompson (1976), but also by the presentations of several states at a July, 1976, conference on 'Educational Reform: The Role of Competency Based Education' sponsored by the Study Commission of the Council of Chief State School Officers.

5 Those experts who contributed most significantly to the definition of CBE used in this paper are Thomas Corcoran, formerly at the Fund for the Improvement of Post-Secondary Education, and currently at the New Jersey State Department of Education; Mary Hall, Oregon State Department of Education; Walter Hathaway and Steven Murray, Northwest Regional Educational Laboratory; Richard Hersh, Ontario Institute for Studies in Education; Ruth Nickse, Syracuse University Research Corporation; H. Del Schalock, Teaching Research, Oregon College of Education; and Gary Woditsch, Bowling Green University.

6 Broadening the concept of capacities to include 'enrichers' as well as 'enablers' begins to take into account the concerns of many teachers and critics that CBE lends itself too readily to the pursuit of a narrow set of outcome objectives and a mechanistic approach to instruction.

7 The difficulty educators seem to have with a definition of competencies based on conceptions of life-roles is reflected in typical lists of 'life-role competencies' that presumably underlie many school courses. The wording of these outcome goals resembles 'capacities' far more than 'competencies.'

8 Although the National Assessment of Educational Progress has been developing applied performance measurement devices for a number of years, the consensus from its March, 1976, conference on applied competency testing was that adequate instrumentation to serve expressed state needs may still be years off.

9 These issues are examined in greater detail in a paper by Spady (1976) entitled, 'Power, Legitimacy, and the Process of Evaluation.'

10 Another option that arises in light of increased complexity of evaluation under CBE is the possibility that staff evaluation specialists may emerge who assume primary responsibility for measuring student outcomes. The role of teacher would itself become more specialized around instructional activities as a result.

11 Some of these issues are framed more explicitly in the context of the multiple functions of the school in a paper by Spady (1975) entitled 'Competency Based Education as a Framework for Analyzing School Reform.'

12 A more elaborate and adequate treatment of how various aspects of program adaptability serve as critical *enabling characteristics* of CBE is provided by Schalock, Spady, and Hathaway (1976).

13 The prospects for change in this direction in Maryland rest largely on the recent appointment of a new State Superintendent of Education who, as Deputy Secretary of Education in Pennsylvania, was one of the architects of that State's Community Learning concept and program.

References

Block, J. H. (ed.) *Mastery learning*. New York: Holt, Rinehart and Winston, 1970.

Block, J. H. *Schools society and mastery learning*. New York: Holt, Rinehart and Winston, 1974.

Carroll, J. B. A model of school learning. *Teachers College Record*. 1963, 64, 723-33.

Clark, J. P. and Thompson, S. D. *Competency tests and graduation requirements*. Reston, Va.: National Association of Secondary School Principals, 1976.

Glick, D., Henning, M. J., and Johnson, J. R. BE: How to prevent a second orthodoxy. *Education Technology*. 1974, August, 17-20.

Hathaway, W. E. Competency based education: Issues and implications for cooperation across educational institutions and levels. Unpublished paper. Salem, Or., 1976.

Howsam, R. B. Performance based instruction. *Today's Education*. 1972, August, 333-37.

Oregon State Department of Education. *Minimum standards for Oregon public schools.* Salem, Or., 1974.

Oregon State Department of Education. *Oregon administrative rules (minimum standards).* Salem, Or., 1976.

Schalock, H. D., Spady, W. G., and Hathaway, W. E. Alternative models of competency-based education. (revised version). Unpublished paper. Northwest Regional Educational Laboratory, Portland, Or.

Schmieder, A. A. Profile of the States in competency-based education. *Performance-Based Teacher Education,* 1974, 3, 5.

Spady, W. G. Competency-based education as a framework for analyzing school reform, in Audrey Schwartz (ed.) *School reforms of the 1970's:* Proceedings of the Third Annual Conference of the Sociology of Education Association. Sociology of Education Society, Los Angeles, 1975, 27-46.

Spady, W. G. Power, legitimacy, and the process of evaluation. National Council on Measurement in Education (in press) 1976.

Stout, R. T. and Spady, W. G. Some criteria for assessing statewide reform: Can California RISE to the challenge? Presented at the Annual Meeting of the American Educational Research Association, San Francisco, 1976.

Trivett, D. A. Competency programs in higher education. ERIC/Higher Education Research Report No. 7, 1975.

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THE COMPETENCY-BASED APPROACH TO EDUCATION AND TRAINING

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W.E. Blank, 'The competency-based approach to education and training', *Handbook for Developing Competency-Based Training Programs*, Prentice-Hall, Englewood Cliffs, NJ, 1982, pp.3–27.

What is competency-based training?

Whether your involvement in training is through public vocational–technical education, business or industrial training, a public agency, the military, or through some other field, no doubt, you have heard the virtues of the 'competency-based' approach expressed. In your particular setting, this approach to training may be called individualized instruction, learning for mastery, programmed instruction, or perhaps something else. Unfortunately, there is a lot of confusion, misinformation, myths, half-truths, and preconceived notions about the competency-based approach floating around today in the education and training field.

Just what is competency-based training, anyway? Why competency-based? Where did it come from? Is it really any different from what good instructors have been doing all along? Is it any better? How can a competency-based program be developed? These and other questions are being asked more and more by instructors and trainers as institutions, schools, and companies begin exploring and adopting the competency-based approach for their training programs. The remainder of this first chapter takes a look at this nonconventional approach to training—what it is, the philosophy upon which it is based, and why it is superior to more conventional approaches to training.

When is a program competency-based? During the past few decades the competency-based approach has emerged as a means of addressing many of the criticisms leveled against the educational system. After the early years of heated debate, experimentation, and trial and error, the dust is beginning to settle.

Many of the leaders in the competency-based movement have reached general agreement on what makes an educational program 'competency-based.'

I have sifted through many of the published lists of essential, desirable, and related elements that distinguish 'traditional' programs from competency-based programs. An attempt has been made to condense these elements into a basic few and to express them in terms of training individuals for employment. After eliminating much of the educationese and the duplication, there seem to be four characteristics that distinguish between training programs that might be considered to be genuinely competency-based and those that are not. These characteristics are listed in Table 1-1 along with a brief explanation of the fundamental differences between traditional and competency-based training programs.

As you can see from Table 1-1, competency-based and more traditional training programs seem to differ in at least four primary ways: *What* it is trainees learn, *how* they learn each task, *when* they proceed from task to task, and, finally, how we determine and report *if* students learned each task. At first glance, these differences may appear minor but once you think about them, you will realize that these two approaches to training are as different as day and night.

Perhaps the most fundamental difference between these two approaches is that the competency-based approach is a very *systematic* approach to training while the more traditional approach is not. Each component of a competency-based training program is designed, monitored, and adjusted with one thing in mind—results. A competency-based training program is a lot like the thermostat on your air conditioner. When you put the thermostat on a certain setting, you decide then, exactly what temperature you want the room or house to be. The thermostat constantly monitors the temperature and either turns the air conditioner on or off to maintain the desired setting. If the room needs more or less cooling, the thermostat senses this and turns the unit on or off accordingly. The room gets enough, but only enough, cooling to maintain the desired level of comfort.

An air conditioner without a thermostat is somewhat like more conventional training programs that have not been designed systematically. Without a thermostat, the air conditioner would continue to cool as long as the switch was on, regardless of how cool the room became. When the switch is turned off, the unit no longer cools, no matter how hot the room becomes. In conventional training programs, instruction is often turned on and turned off based solely on the clock or the calendar with little regard for how much instruction each student really needs. Instruction may be delivered in fifty-minute periods, three-hour blocks, or sixteen-week semesters regardless of how much or how little instruction each trainee may need to fully master each learning task. A competency-based program, on the other hand, allows each student's own learning 'thermostat' to adjust the level and pace of instruction as needed. Each learning outcome or 'setting' is established up front. Each trainee can then turn on or turn off instruction as needed to reach the desired outcome.

Recently, we have learned a great deal about the learning process. We know what promotes and inhibits learning. We understand what events must take place during any learning activity for effective and efficient learning to happen. Unfortunately, our whole system of education in general and the fields of vocational education and industrial training in particular, have been slow to capitalize on what we have learned. In essence, that is what the competency-based approach to training is all about. It is an attempt to put into practice what has been learned recently about improving the quality of what takes place in the classroom and shop.

Table 1-1 Basic characteristics that distinguish between competency-based and traditional training programs

Characteristics	Competency-Based Programs	Traditional Programs
1 WHAT Students Learn	1 Are based *solely* on specific, precisely stated student outcomes (usually called competencies or tasks) that have been recently verified as being essential for successful employment in the occupation for which the student is being trained. These competencies are made available to all concerned and describe *exactly* what the student will be able to *do* upon completing the training program.	1 Are usually based on textbooks, reference material, course outlines or other sources removed from the occupation itself. Students rarely know *exactly* what they will learn in each successive part of the program. The program is usually built around chapters, units, blocks, and other segments that have little meaning within the occupation—instructors focus on 'covering material.'
2 HOW Students Learn	2 Provide trainees with high quality, carefully designed, student-centered learning activities, media and materials designed to help them master each task. Materials are organized so that each individual trainee can stop, slow down, speed up or repeat instruction as needed to learn effectively. An integral part of this instruction is periodic feedback throughout the learning process with opportunities for trainees to correct their performance as they go.	2 Rely primarily on the instructor to personally deliver most of the instruction through live demonstrations, lectures, discussions and other instructor-centered learning activities. Students have little control over the pace of instruction. Usually, little periodic feedback on progress is given.
3 WHEN Students Proceed from Task to Task	3 Provide each trainee with enough time (within reason) to *fully* master one task before being allowed or forced to move on to the next.	3 Usually require a group of students to spend the same amount of time on each unit of instruction. The group then moves on to the next unit after a fixed amount of time which may be too soon or not soon enough for many individual trainees.

4 IF Students Learned Each Task	4 Require each individual trainee to perform each task to a high level of proficiency in a joblike setting before receiving credit for attaining each task. Performance is compared to a preset, fixed standard.	4 Rely heavily on paper and pencil tests and each student's performance is usually compared to the group norm. Students are allowed (and usually forced) to move on to the next unit after only marginally mastering or even 'failing' the current unit.

Desirable or not? Before going any further, you probably need to decide whether or not you find the competency-based approach more desirable than the traditional approach. Basically, if you believe that training programs should (1) spell out exactly what it is that trainees should learn, (2) provide high quality instruction, (3) help students learn one thing well before going on to the next and then, (4) require each trainee to demonstrate competency, then you buy into the competency-based approach.

On the other hand, if you genuinely believe that (1) very general statements of student outcomes are sufficient, (2) instructors personally lecturing and demonstrating to the group is the best approach to instruction, (3) all students should spend about the same amount of time on each task and should move on when the group is ready, and (4) students should be evaluated based on how well they did compared with other students, then you probably don't find the competency-based approach very appealing. This is a very personal decision that only you can make for yourself.

Why 'competency-based'? The term 'competency-based' has been selected for the approach to training described in this book more for convenience than for accuracy or some other reason. There are almost as many names for the approach floating around as there are 'experts.' Everyone seems to be pushing his or her own acronym or title. Don't get confused or turned off by what this or any other author *calls* the concept. Focus on the concept itself, why it is different, why it is better, and how to do it—don't worry about what it is called. Let your school or state or corporation come up with its own label for this systematic approach to training; the real key is to get about the business of doing it.

Some of the more common labels given to this approach to training include:

- Competency-Based Instruction (CBI)
- Mastery Learning
- Systems Approach to Education
- Personalized System of Instruction (PSI)
- Performance-Based Instruction
- Criterion-Referenced Instruction (CRI)
- Learning for Mastery (LFM)
- Objective-Referenced Learning
- Individualized Instruction (II)
- Programmed Instruction (PI)
- Self-Paced Learning
- Instructional System Development (ISD)

Although all these terms are not entirely synonymous, they are similar enough that they can just about be used interchangeably. If a particular approach to training has the four basic characteristics mentioned earlier, we might consider it to be competency-based or individualized or personalized—regardless of what it is called.

Is it new? One of the ironies surrounding the competency-based movement is that many educators reject the idea as just the latest fad in a long series of 'fix-it' cures for the problems we are faced with in education and training. Ironically, the *idea* behind the competency-based approach not only isn't new, it is ancient. Keep the basic elements of competency-based instruction in mind (what, how, when, if) as we look back at how job training was carried out hundreds of years ago.

> When an apprentice blacksmith was ready to learn a new task, he was told exactly what it was he was going to learn. The master blacksmith did not introduce a new unit or enroll the apprentice in a new course. He probably said something like 'Today I'm going to show you how to make a nail' (What). The apprentice, of course, was not assigned a chapter to read on the history of nails.
>
> The master craftsman showed the apprentice very slowly and very carefully *exactly* how to make a nail—how to cut the blank, how to pound the head into shape, how to shape the point, and how to heat-treat it for hardness.
>
> When the apprentice needed to know something to be more skillful—*that* was when he was told. Next, the apprentice tried his hand at making a nail—under the direct supervision of the master. When he made a mistake he was stopped and helped to correct the error—right then. When he did well he was rewarded with a pat on the back or a few reassuring words from the master (How).
>
> After sufficient practice, the apprentice hammered out nail after nail on his own until they were as good as those made by the master (If).
>
> Only then did the master blacksmith show the apprentice how to make horseshoes, or hinges. It never entered his mind to move the apprentice on to some other task until the apprentice had convinced him through his performance that the current task had been mastered (When).

In a sense, the competency-based movement is a way of returning to this same personalized, individualized approach to transmitting skills from a master to a novice. Throughout the last several hundred years we have continued to use the same basic approach to instruction—the master personally showing apprentices how to perform skills. There are two recent developments, however, that have rendered this method of instruction *ineffective* for most trainees. These two developments are the greatly increased *numbers* of trainees assigned to the master craftsman (instructor) and the increased *complexity* of what must be learned.

No longer are one or two apprentices assigned to one master craftsman. Today, education and training are demanded and deserved by the entire population—not just by an elite few. Instructors today find themselves faced with classes of 20, 30, or more students. It is no wonder, then, that teaching methods that worked perfectly well several hundred years ago when only a handful of trainees were involved just do not work very well for many of the students in today's diverse and expanding student population. Never before in history have education and training opportunities been so abundant.

Standing before one or two apprentices and personally demonstrating, showing, and explaining how to do something worked well enough in years past. Recent evidence, however, shows very clearly that such instructor-centered teaching methods work well for only about 10 to 20% of the students enrolled in today's large classes. We have expanded the *reach* of job training a hundredfold, but the *effectiveness* of that training has not kept pace.

The *complexity* of what today's trainees must learn is also causing problems. As long as apprentices were mastering tasks that were largely skill-oriented (such as making boots, binding books, making furniture, laying cobblestones, and making candles), the 'instructor' could do all the teaching—personally. Today's highly technological society dictates that trainees master not only a great many skills, but highly complex skills involving very expensive, dangerous and sophisticated equipment, instruments, devices, and processes

In addition, most jobs require an ever-increasing amount of highly technical knowledge and decision-making ability. No longer can the teaching methods of several hundred years ago be expected to serve the demanding training needs of today and tomorrow. It is just not reasonable to expect the same instructional method used in the 1700s for a master to teach an apprentice how to tan leather, to be effective for an instructor today to teach 15 or 20 students how to insert nuclear reactor control rods or how to service catalytic converters. The competency-based training movement is an attempt to bring vocational, technical, and industrial training out of pre-industrial revolution days into the nuclear-electronic era. It is simply a means of bringing occupational training one step closer to becoming more of a science and less of an art. This systematic approach will go a long way towards helping instructors and trainers develop a 'technology of training' equal to the challenge of the increasingly complex world in which we live and work.

What's wrong with the traditional approach?

Although vocational education and industrial training programs have adequately served business and industry's need for trained workers in the past, they have come under increasing criticism recently. Taxpayers, policy makers, and training directors are more reluctant to spend larger and larger sums of money for sometimes questionable results. Both public vocational–technical education and business and industry training have been caught in the squeeze of public and corporate accountability and retrenchment.

Listed below are some of the more often heard criticisms of training programs in operation today:

- Very few trainees who begin training programs ever complete them. Drop-out rates in some formal programs run as high as 75%.
- A small percentage of students (typically 10% or so) really master the training tasks at a high level of proficiency. Up to 90% of students graduating may be only minimally competent.
- Heavy reliance on lectures (sometimes several hours long) as a teaching method leads to student dissatisfaction, absenteeism, and discipline problems.

- There seems to be a lack of well developed, appropriate curriculum materials and instructional media in use today. Many instructors tend to teach 'off the top' with little planning.
- Students receive little or no immediate, periodic feedback throughout the learning process so they can correct their learning mistakes as they go. Often a final grade in a course or unit is a student's only indication of how he or she is doing.
- Many trainees who are only marginally competent but who show up regularly and stay out of trouble receive a certificate or diploma. As long as a 'C' average or 'satisfactory' progress is maintained, students remain in good standing and the next thing the instructor knows, the student graduates.
- Employers have little indication of exactly what it is successful graduates can actually do. Transcripts and course titles are of little help.
- There is an over emphasis on theory, memorizing facts and terms, nice-to-know knowledge and background information and not enough emphasis on learning how to actually perform tasks needed on the job.
- There seem to be tremendous variations in quality from one program to the next—even in the same school or department. This quality seems to be determined primarily by the instructor. Efforts to improve quality many times meet with disappointing results.
- Programs are many times unable to respond to the unique learning requirements of students with special needs such as the educationally disadvantaged, the handicapped, and others.
- Many programs are somewhat rigid in their operation and fail to meet the real needs of students and the world of work. Most programs only allow enrollment once or twice a year, may discourage or prohibit early exit, sometimes poorly match trainees with programs, and usually will not allow students to repeat portions of the program if needed.
- In many programs, students are unable to test out of and receive credit for those competencies already mastered. Students must sit through instruction in those competencies just like everyone else.

While certainly not all inclusive, these criticisms do draw attention to some of the serious shortcomings of many training programs in operation today. This is certainly not intended as a general indictment of today's training. There are many excellent programs in operation all around us—in corporations, vocational centers, technical institutes, the military, and in other settings. Regretfully, the percentage of programs that are outstanding is disappointing. It has been said that perhaps one or two per cent of teachers are creative geniuses who will excel based on their own ability, imagination, and hard work. You might look at the competency-based approach as a systematic, well thought out approach to training to help the other 98% of us be more successful than perhaps we are now.

The competency-based approach or any other approach will not cure all the problems we face in training individuals for employment, but it will help. It is being proven around the country as a viable method of training that attacks—head on—many of the shortcomings of present training programs both in the public and private sector. Major corporations, governmental agencies, and the military began shifting towards competency-based training some years ago. It is encouraging to note that, recently, many state departments of education, local school districts, boards of education, and school-level administrators and instructors are actively exploring competency-based systems of instruction as a means of improving the quality of vocational and technical education at the local level.

Principles behind the competency-based approach

To fully appreciate the fundamental differences between the competency-based and the 'traditional' approach to training, we need to examine the basic principles and assumptions that underlie the competency-based philosophy. First, a word of caution. Many of the assumptions and beliefs upon which this approach is based may at first glance appear to be very idealistic, perhaps revolutionary, or even impossible. Let me say very quickly that every principle underlying the competency-based approach presented here has been shown to be valid in hundreds of schools around the world. Rather than just theories or speculation, these principles and assumptions are being proven daily in programs where the competency-based approach is being successfully implemented.

Many of the principles described here are based on ideas presented earlier by several pioneers in the 'mastery learning' movement. Those involved in shaping this movement during the last two or three decades are too numerous to mention; however, several leaders stand out. Among the most often quoted pioneers in this field, and perhaps their best known work, are:

John B. Carroll. A Model of School Learning. *Teachers College Record*, 64 (1963): 723-733.

James H. Block, ed. *Mastery Learning*. New York: Holt, Rinehart and Winston, Inc., 1970.

Benjamin S. Bloom. *Human Characteristics and School Learning*. New York: McGraw-Hill Book Company, 1976.

Anyone seriously interested in finding out more about the underlying philosophy behind this approach to education is urged to read these three resources. Those interested in the competency-based approach to vocational, technical, and industrial training are urged to read what was, perhaps, one of the first substantial works devoted to the subject:

David Pucel and William Knaak. *Individualizing Vocational and Technical Instruction*. Columbus, Ohio: Charles E. Merrill Publishing Co., 1975.

Listed below are some basic principles upon which the competency-based approach to education and training are based. The remaining chapters of this book describe strategies, techniques, instruments, and materials that have been used successfully to implement these principles in occupational training programs.

Principle 1

> *Any* student in a training program can master most *any* task at a *high level* of mastery (95 to 100% proficiency) if provided with *high-quality instruction* and *sufficient time*.

This principle is the real bedrock of the competency-based philosophy. Just think of the implications this has—not only for occupational training programs—but for the entire spectrum of education. You don't believe it? Think about it for a minute. Pick any task from a training program, no matter how complex. Think back on all the students you have had over the years. Could not perhaps 98% of them have successfully mastered—at a *high level*—even the most complicated task if you could have provided them with *high quality* instructional materials and *enough time* to spend on learning the task as they needed (assuming that they wanted to and had the necessary prerequisites)?

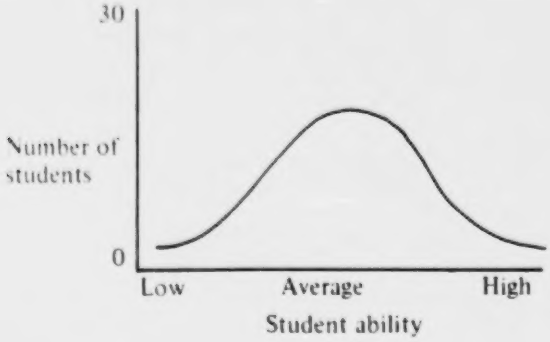
This book is based on the notion that students enrolled in our training programs cannot only learn what we have to teach, but they can learn it *well* if we simply provide them with carefully developed learning materials and a little extra time if needed.

Principle 2

> A student's *ability* for learning a task need not predict how well the student *learns* the task.

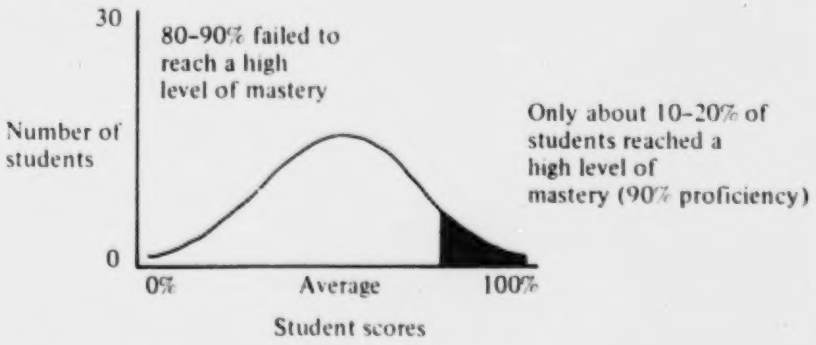
Many studies have shown that in the traditional system of education an individual's 'ability' for learning is highly predictive of how well the student actually learns. Students of higher ability have typically done better in school; students of lower ability have done worse. The second principle, however, says that when provided with *favorable learning conditions*, a student's ability going into a learning situation will have *no* bearing on how well the student learns.

Let's look at an example. If we have 30 typical students in a training program who vary in ability from low to high in a normal way, their ability plotted on a graph might look like this:



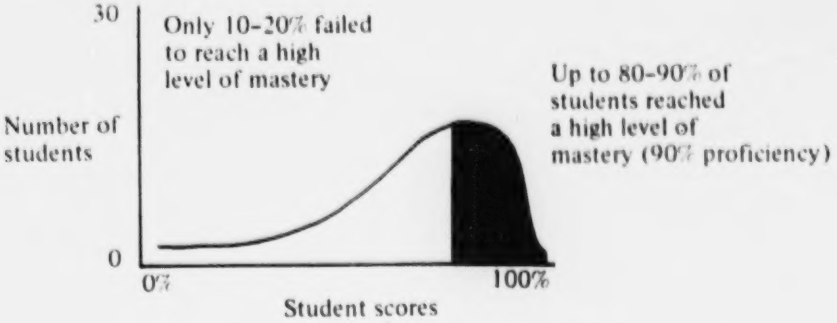
As you can see, a few students are of quite low ability, a few are of high ability, and the rest are in between—most being of 'average' ability.

Now, if we have these 30 students experience a 'traditional' learning activity that is of some *fixed time length* (say 50 minutes or three hours) and is *instructor-centered* (say, a live demonstration or lecture), let's see what their *test scores* would look like:



A few students would probably score at the low end on the test, a few would score at the high end, and everyone else would fall in between with most students scoring about 'average.' If you recognize this little scenario it is because it has been played out in virtually every school for the last 200 years. A select few excel (typically about 10 to 20%) and get A's, a few fail, and the majority simply 'slide by.' Not only that, but the students of *low* ability are invariably the *same* students who reach only a low level of mastery. Students of high ability are the *same* students who reach high levels of mastery. This is usually repeated year after year until many of the low ability/ low mastery students drop out, flunk out, or are pushed out of the system or, even worse, remain in the system, causing disruption, crime, vandalism, and a host of related problems.

Now let's see what might have happened if the same 30 students had been provided with a competency-based 'mastery learning' kind of learning experience that provided *high-quality, student-centered* learning experiences and *enough time* and *help* to reach mastery.



By giving students the right kind of instruction and enough time, most can reach mastery. Each student's ability coming into the learning experience need not have any bearing on performance. Lower-ability students may simply need some additional time and help to learn, but they can learn *as much* and retain it just *as long* as students of higher ability who needed less time and help. Student ability should only predict *how long* it takes to learn—not how much is learned!

Principle 3

> Individual student differences in levels of mastery of a task are caused primarily by *errors* in the training environment, *not* by characteristics of the students.

Studies by Bloom and others have shown that many of the differences in how much students learn are caused *not* by an innate quality possessed by the student but by 'errors' in the educational system. The more 'ideal' an educational system becomes, the fewer differences that occur in learning. The further from ideal an educational system becomes, the greater the differences in learning among students.

Three factors that have been shown to have a lot of influence on how much students learn are (1) how many of the necessary learning prerequisites a student already has, (2) what kinds of feelings or attitudes the student has about the learning experience, and (3) the quality and length of instruction. The competency-based approach addresses all three of these elements in a positive way. Later chapters explain how the use of carefully developed 'learning packages ' with supportive media can provide the quality and length of instruction students need to reach mastery. By successfully mastering early, basic tasks at a high level of mastery, students will tackle later, more complex tasks with the necessary prerequisite learning well in hand and with a positive attitude about the learning experience.

Principle 4

> Rather than being *fast* or *slow* learners, or *good* or *poor* learners, most students become *very similar* to one another in learning *ability, rate* of learning, and motivation for further learning when provided with favorable learning conditions.

This principle, on which Bloom's book *Human Characteristics and School Learning* is based, challenges the way in which students have been viewed for many years. We can only guess at the number of students who have been tracked, channeled, turned away, or otherwise not been given the educational opportunity that was rightfully theirs simply because they were labeled as slow learners or poor students. In the competency-based approach we assume and fully *expect* that each and every trainee cannot only make it, but can excel. We focus our efforts on systematically developing and adjusting the training program to come closer to making this goal a reality.

Principle 5

> We should focus more on differences in *learning* and less on differences in *learners.*

We focus so much of our attention these days on differences among *learners.* We categorize, pigeonhole, stereotype, and group students based on outward characteristics that often have little if anything to do with how well they learn. When one student succeeds and another fails, we are quick to look at differences in the learners to explain it. One student was old, the other was young, one was motivated, one was not, one was a minority-group member, the other was not. Very seldom do we critically examine the *instructional process* as the source of these differences in learning outcomes and systematically try to correct it. The competency-based approach focuses less on the learner's characteristics and more on adjusting the learning process to maximize the outcomes for each student.

Principle 6

> What is worth teaching is worth learning.

Many educators and trainers take the position: 'Here it is; I'm going to present it to you. If you get it fine, if not, fine—it's up to you.' Incredibly, dropout rates of 25 to 50%, failure rates of up to one-half, and excellence achieved by only a handful of students does not bother some instructors. Some have the attitude that it is not my problem—it is their problem. 'If they drop out or fail, that's their problem—not mine. I'm doing what I'm paid to do—teach!' Attitudes such as this (conscious or unconscious) prevent any real progress in significantly improving the quality of education and training on a large scale.

The competency-based school of thought, on the other hand, says that when a student fails to reach mastery, it is *our* problem. This approach to training is based on the notion that if it is important enough to be included in the training program, it is important enough for each and every student to learn it and learn it well. When a trainee fails to learn, we are seriously concerned—concerned enough to do everything in our power to correct the situation. Those involved in successful competency-based programs view themselves as concerned professionals who have been highly trained to operate a very complex training technology successfully. They consider themselves far more than just teachers or instructors.

Principle 7

> The most important element in the teaching–learning process is the *kind* and *quality* of instruction experienced by students.

This area of concern, perhaps, is where the conventional and the competency-based approaches are furthest apart. In traditional programs, instruction is viewed as just another one of the elements affecting what students learn—just as the facility, tools, and materials are. Instruction is usually handled in a very informal, unstructured, 'spray and pray' manner. In contrast, the instruction given to students in the competency-based approach is viewed as extremely critical to learning. The actual delivery of instruction is very, very carefully designed, developed, tried out, and constantly revised based on results.

Instruction is systematically designed around several essential elements. Bloom described four basic elements: First, the student is presented with some sort of cue, which might be audio or visual or in some other form. Next, the student *participates* by actually practicing, applying, responding, or in some other way doing something with the cues that were presented. As the learner participates, he or she is periodically *reinforced* to ensure that correct performance will continue and incorrect performance will not. Finally, *feedback* and *correctives* help students find out how well they are doing and what they need to improve to reach mastery.

Competency-based myths debunked

As with any innovation in education (or any other field) that has the far-reaching implications that the competency-based approach has, there are many misconceptions, myths, and preconceived ideas about what it is and what impact it will have on those that will be affected by it. Let's take a few minutes to address some of the popular myths associated with competency-based training.

Myth 1

> The competency-based approach to training is an attempt to eventually phase out instructors.

Absolutely false; by now you should have a pretty good idea of the tremendous amount of time and effort that will be required to develop and implement competency-based programs on a wide scale. If anything, this will take more instructors—not fewer. Once a program is fully developed and is running smoothly, it is absurd to fear that the instructor will be let go so that the program can be run by a lower paid assistant. Only a highly experienced, competent professional can adequately answer students' questions, devise testing situations and evaluate student competence. Furthermore, once learning packages and media are finally well-developed it will be just about time to begin making major revisions. If you are concerned about being replaced by a clerk or a computer—relax; it won't happen. You must, however, be willing to assume a *new role* within the training program and become less and less a presenter of information and more and more a manager of learning. You will find that helping students *learn* is far more challenging and rewarding than simply *teaching*.

Myth 2

This approach works well only with better students.

Quite the opposite is true! It is the *traditional* approach that works well only for the better students. Any system that results in only 10 to 20% of the students reaching a high level of mastery should be suspect. The more capable students will probably succeed in most any system—it is the *less* able student who stands to benefit the most from the competency-based approach. In later chapters you will see how high risk, special needs, handicapped, disadvantaged, and other students can benefit significantly from this approach. When instruction is carefully designed and broken down task by task, and when time is made flexible, far more students can learn and learn well—far more than under the lock-step, fixed-time approach.

Myth 3

It is mechanical and inhumane and students don't really like it.

Ridiculous! Study after study has shown that students overwhelmingly prefer the personalized, self-paced approach. They enjoy the challenge, the freedom, and the lack of pressure to keep up with the group. Being shown exactly what must be learned, being provided with high-quality learning materials and enough time and help to master each task at a high level is just about as humane as you can get. It is difficult to imagine a system of education any more *inhumane* than one that keeps students in the dark about what is to be learned, that requires students to endure two- and three-hour lectures on 'theory' that will not be applied until months later, and that assigns grades to each student based on how other students perform.

Students get more individual attention from the instructor in a competency-based program than in a traditional program in which the instructor is busy 'teaching' all day.

Myth 4

It stifles instructor creativity.

Nothing could be further from the truth. A tremendous amount of creativity, resourcefulness, and imagination are needed to successfully develop, operate, and manage a truly self-paced, individualized instructional program. Assisting 20 students who may be working on 20 different tasks takes a certain amount of creativity. If standing in front of students lecturing and demonstrating, sending them out into the shop, and then giving them a test that reveals that only *one* out of ten really learned is *creative*, I think we need to redefine the word.

Myth 5

> Cramming the same competencies and objectives down every student's throat is not treating students as individuals.

Nowhere is it written that every student enrolled in a competency-based program must learn identical competencies. Competency-based training programs are usually built upon the specific tasks that have been verified as being essential for entering one of *several* closely related occupations. For example, in a competency-based secretarial program, students may be given the option of mastering only those tasks that are needed to become a receptionist or a file clerk, or if they prefer, they can master all the competencies in the program to become a well-rounded general secretary. Not requiring a student to learn tasks such as 'file alphabetically' or 'take incoming telephone calls' that have been verified as essential to employment in the occupation for which the student is training is certainly not meeting the individual needs of the student. The real tragedy in the conventional approach is that usually all students are 'exposed' to the same tasks, with only a select few really mastering any of them well.

Myth 6

> Competency-based programs are much more expensive than conventional programs.

This just is not so. Although initial costs may be somewhat higher, over the long run, effective, competency-based, highly mediated programs are not necessarily any more costly than conventional programs. If costs vs. benefits are looked at, many feel that competency-based programs are actually *less* costly. This is due to lower dropout rates, lower failure rates, higher average daily attendance, students being allowed to exit early and then being replaced by new students, and other factors. Even when only startup and operating costs are compared, competency-based programs compare favorably with traditional programs. In conventional programs, new instructional media and related learning materials are usually purchased every few years, with much of it collecting dust. Also, multiple (sometimes one for each student) tools and equipment are purchased. It is not unusual in many traditional programs to find 20 of this tool and 10 of this instrument, since most students are working on the same task at the same time. However, in competency-based programs, since students are usually working on different tasks, the same resources can be used to purchase a greater variety of higher quality tools, instruments, and equipment.

Myth 7

> The competency-based approach might work all right for some programs, but it just won't work in mine because ....

This is the old 'other program' myth that dies hard. I have talked to instructors and trainers from virtually every occupational area who say with great authority: 'It works great in industrial occupations, but the health occupations area is too complicated' or 'I've seen it work well in health-related areas, but it would never work very well in the electronics field because ....' It goes on and on. Everyone seems to think it might work well in most areas *except their own*. I suppose that this is a natural defense mechanism we all have. What they are really saying is, 'I really don't know if it would work in my occupational area and I just don't know enough about the competency-based approach to try it. So rather than admit my lack of understanding of the concept and to eliminate the risk of failure, the easiest way out is to simply say that it won't work.'

The competency-based approach will work equally well in *any* occupational training area: business, agricultural, health, industrial, marketing and distributive, public service, or home economics. It works just as well at any level: exploratory, vocational, technical, or professional. It can work equally well in any setting: military, agency, public school, private institutions, business and industry, or elsewhere. The difference must be in *how* the program is designed, developed, implemented, and operated. Obviously, a training program for preparing cashiers to operate a new optical scanning cash register in a retail store chain would be put together a little differently than a program to train neurosurgeons or seamstresses. The basic approach, however, would be very similar with similar, positive results—a far higher percentage of trainees reaching higher levels of mastery.

Myth 8

> Competency-based instruction is not appropriate for my area because my students need actual hands-on work.

Unfortunately, this is one of the more widespread myths; many believe that competency-based instruction involves learning only theory or facts and not skills. The exact opposite is true: As you will see in a later chapter, the competency-based approach downplays theory for theory's sake and focuses on the actual job skills needed by trainees to become successfully employed. Theory is only taught if and when it is needed to support the competent performance of tasks. It is based on the philosophy that workers get paid on the job for what they can *do*—not what they know.

Myth 9

> It sounds good, but it just won't work in real life, because I would need two aides, a photographer, two typists and a computer to develop and keep up with all the materials and media.

It is true that competency-based learning requires packaged and mediated learning materials that are appropriate for students and for the tasks being learned. Nobody said all the competency-based materials you might need for your program must be developed overnight. You can create a little here and a little there without putting an undue strain on your time or budget. The typing and photographing help you will need are already available in most schools and training departments. As for keeping up with all the materials once developed, this will be no more or less of a problem than it is now—only a different *kind* of problem.

Myth 10

> Instructors in other occupations may be able to put their competencies down on paper, but not me, because my students need to be able to solve problems, make judgments, and things beyond just performing basic tasks.

This argument just does not hold water. If an instructor is unable (or unwilling, maybe) to put down on paper, in black and white, *exactly* what it is the student should learn, how can the instructor develop good learning materials to help students get there or develop valid tests to see if they arrived? Any desired outcome of a program, no matter how lofty, complex, or hard to teach can be specified in terms of exactly what it is the trainee must be able to do for you to conclude that the outcome has been met. It is simply not true that the competencies that make up competency-based training programs have to be low level or basic skills. If the trainee needs to be able to 'solve quadratic equations,' or 'diagnose the patient's condition,' or 'land a 747 without power,' or 'leap tall buildings in a single bound,' then it is simply a matter of saying so.

Myth 11

> Competency-based instruction is not any different from what good instructors have been doing for years and years.

There is a lot of truth to that statement: Effective instructors are, in fact, practicing many of the principles underlying the competency-based approach. Unfortunately, many 'effective' instructors only become effective after years of trial and error, and finally settle on a system that seems to work. Many times they really don't know why something works or doesn't work well—only that it does or doesn't. Usually, nobody except that instructor understands the instructional system finally developed, and when that instructor leaves, the 'effective' program leaves also. Using a competency-based system of learning allows instructors to make some deliberate changes in their current programs for very definite reasons. It helps get the program 'on paper' so fellow instructors, supervisors, substitutes (and yes, even students) can see and follow what is going on.

Myth 12

> I don't need this competency-based business, because my program is running smoothly right now and all of my graduates are getting jobs.

This is a touchy area. It is natural to resist any new approach, particularly when the approach implies that what you have been doing all these years might not be the best approach for students. Instructors who might be tempted to reject competency-based instruction outright because their present program seems to be doing all right, might want to ask themselves:

- How many years of tinkering and experimenting with students did it take for your program to begin working well?
- If you get run over tomorrow, would your program run just as smoothly for your successor or would he or she fumble for several years to get where you are?

- What percentage of the students who enroll in your program ever complete it? Sixty per cent, fifty per cent, twenty-five per cent, maybe less? Maybe there is a reason for losing so many students.
- Of all the students who begin your training program, what percentage graduate with a *high level* of proficiency in your learning tasks? Five per cent, two per cent, maybe even less? Are you satisfied with that? Are you satisfied with possibly 95 per cent of your beginning students leaving at some point with less than an 'A' level of learning?

Myth 13

> It looks like a good idea, but it would take a hundred years for me to sit down and identify specific competencies and write all those learning packages.

It will take time to put together a competency-based program, but because it is going to take some time and effort is just not a good enough reason for not doing it. Just think, if you had begun developing competency-based materials a few years ago, you would probably be finished now. Remember that singing 'ain't it awful' and complaining won't bring you any nearer to developing a more effective program than you are now. Only one thing will—action.

Myth 14

> The competency-based approach sounds good on the surface, but it only lowers standards so most students can pass!

Absolutely false: Please don't confuse competency-based instruction with 'minimum competency testing.' The real tragedy of the minimum competency testing movement that is sweeping the country is that it only deals with *measuring* competence—not *bringing it about.* Since our educational system is organized around the traditional, fixed-time, instructor-centered approach, most students proceed from subject to subject and grade to grade largely *incompetent* in most tasks. It is no wonder, then, that functional literacy exams for high school seniors must be written at the eighth grade level!

Minimum competency testing without 'maximum competency learning' is one of the greatest tragedies to occur in American education. The competency-based approach to instruction not only insists that each student demonstrate competency, but the minimum acceptable level of competency can be set at an extremely high level and attained, because students are given the time and help needed to get there.

Myth 15

> I'm sorry, but my students just wouldn't be able to learn well from media and learning packages. They need me right there to help them and answer their questions.

Many instructors genuinely feel this way. The facts, however, just don't support the belief. Instructors who have successfully implemented competency-based programs have found just the opposite to be true. They find that the majority of students can learn well from packaged and mediated learning materials. Many instructors are shocked to find that not only can students learn a great deal without the instructor doing all the teaching, but they can often learn better and faster. 'What about the unmotivated student or the one who is not self-directed?,' you say. The fact is, you will have more time during the day to work individually and in small groups with students who have difficulties than you ever would if you spent the entire day teaching.

Is it any better?

That question is foremost in the minds of many instructors, supervisors, trainers, and others involved in vocational-technical and industrial training. Is the competency-based approach (by whatever name it may go by) really any better than the traditional approach? Is it worth all the effort and expense required to develop packaged, structured, mediated learning materials? Do the benefits justify going through the pain and agony sometimes required to promote change in individuals and institutions?

In a nutshell the answer is 'yes.' Ten or twenty years ago the answer would have been 'probably.' There has been enough hard data collected lately to warrant making a general statement about competency-based versus traditional training:

> When carefully developed and implemented, the competency-based approach to training is generally superior to the traditional approach in terms of student outcomes and in several other important ways.

There has been enough evidence gathered in business, industry, the military, agencies, unions, public vocational education, and other settings to support this statement. Study after study has been conducted comparing the two approaches. The competency-based approach usually results in more trainees mastering more competencies at a higher level of proficiency than in the traditional approach.

A word of caution is in order here. Many studies reported in the professional literature compared 'conventional' instructional methods with the 'individualized' approach and found neither approach superior to the other. Studies reporting 'no significant difference in learning' between the two approaches usually have one thing in common: a less than carefully designed and implemented approach to the individualized method. The potential benefits of competency-based training will not be realized by simply writing objectives and video-taping lectures or using workbooks. It must be a total, systematic effort—all four of the major characteristics of competency-based training programs mentioned earlier must be included if dramatic improvement is expected.

When the competency-based approach is meticulously designed, developed, and implemented, however, improvement in the training program can be seen in several areas. Below are some of the typical improvements reported by others who have successfully incorporated the competency-based approach into their programs:

- Students seem to learn more; higher scores on tests are reported.
- Students appear to remember what they learn longer; retesting over time often shows higher test scores.
- There is much less 'prediction' of how well a particular student will do based on his or her previous grades in school.
- Many more students excel; rather than only a handful of students earning A's, most students reach high levels of proficiency.

- Students experience success very early in the program, providing important motivation, a better feeling about the program, and an improved self-concept.
- More can be learned in the same length of time. Many instructors report that packaged and mediated materials eliminate much of the time students usually waste—waiting for instruction; wading through reading assignments; or receiving instruction in tasks they can already perform.
- Lower test scores improve dramatically. Students typically at the low end of the achievement scale benefit greatly. Since they can now get the time and help they need, they are no longer doomed to failure.
- Dropout rates are usually lowered. Students get hands-on experience the first few days; they no longer must sit through weeks or months of theory classes and can experience a high level of success without the pressure of competing with other students for grades.
- Students learn to take more responsibility for their own learning. After some initial adjustment, most students respond well to the added responsibilities the competency-based approach places on them.
- Instructors have more time to help students who genuinely need it.
- The program can almost 'run itself' when the instructor must be called away for a phone call, a day's absence, or when a substitute may be needed for several days.
- Students usually stay busier, longer. When students become 'task-oriented' they spend less of their time goofing off and getting into trouble.
- Overall, the training program takes on a more professional, businesslike atmosphere which seems to contribute toward higher morale for instructors, students, and administrators.

You may not realize all these improvements in your training program; it will depend on how effective your program is now and how hard you are willing to work toward developing and implementing a truly competency-based, personalized program.

A few observations are worth sharing here. I have had the opportunity to work closely with many instructors in developing and implementing competency-based training programs. Almost without exception, instructors who give the competency-based approach an honest try rarely return to the traditional, instructor-centered approach. Once they experience the thrill of helping nearly all students learn well, they are very reluctant to settle for only a few students succeeding.

Finally, instructors who have successfully implemented competency-based learning seem to have at least one trait in common—they *wanted* it to work. Although many of these instructors were suspicious, skeptical, or outright hostile at first, once they became convinced, they found ways to make it work.

Obstacles became challenges to meet rather than excuses why it would not work. If you believe the competency-based approach will work for you, the chances are excellent that it will. If you think it won't work—you're right, it won't!

Developing a competency-based training program

One of the challenges in putting together a book like this is to try to make it equally beneficial for the several different groups at which it is aimed. If only a narrow readership were intended, whether vocational educators in the public educational system, or trainers in business and industry, or human resource specialists in agencies, this section (and the rest of the book for that matter) could have focused on one set of terminology, examples of one kind, and one very specific approach.

Since the author is convinced that virtually anyone involved in the entire spectrum of developing human resources through education and training can benefit significantly from applying the principles presented in this book, its approach had to be somewhat broad. An attempt has been made to describe an overall plan for designing, developing, implementing, and managing competency-based instructional programs regardless of the level or area. Hopefully, the plan is general enough to apply to a wide range of local training situations and yet specific enough to be truly helpful. Only time will tell if this goal has been met.

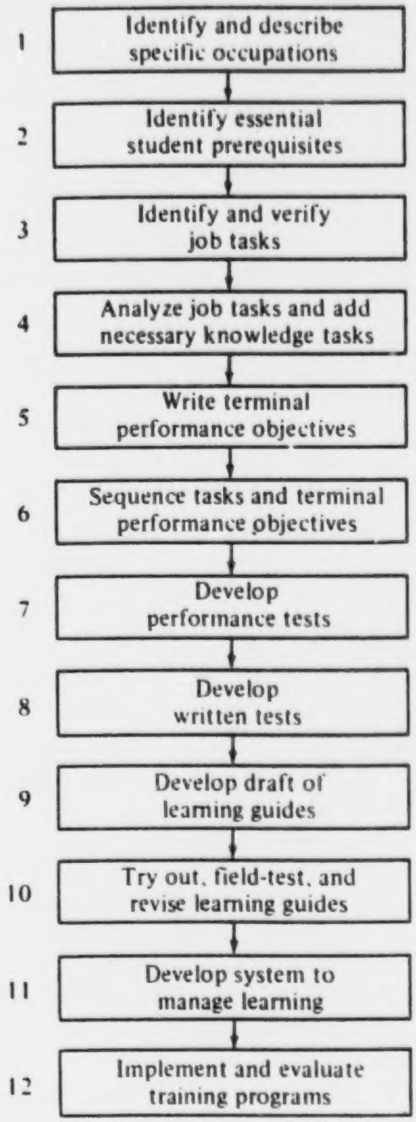
In Table 1-2 you see the overall plan for developing competency-based training programs presented in this book. There is certainly nothing magical about this *particular* plan. It is based on 12 specific tasks that should be accomplished to implement a competency-based training program successfully. This plan could just as easily have included 6 tasks or 26 tasks, depending on how finely or broadly they had been developed.

In most books dealing with curriculum development and instructional design, the reader is overwhelmed with complicated flowcharts, complex 'models,' and sophisticated systems analysis mumbo-jumbo that appears to be included more to impress than to inform. This tendency has been consciously avoided. If the plan shown in Table 1-2 represented by the 12 tasks looks kind of simplistic, I'm delighted.

Of course, this particular plan will not work for every local training situation. No doubt, you will find it necessary to skip over some parts and go more deeply into others. You may need to alter several of the strategies, forms, instruments, and formats presented. Some of the tips and suggestions will be helpful, whereas others will not apply to you or your situation.

The approach for developing competency-based training presented in this handbook is, of course, not *the* approach but *one* approach. It has been used with positive results in one form or another in several local settings. The main reason for presenting the plan as you see it in Table 1-2 is that it works. Try it, change it, adapt it, or redesign it to fit your needs.

Table 1-2 Twelve tasks to be accomplished to develop a competency-based training program


1
Identify and describe specific occupations
2
Identify essential student prerequisites
3
Identify and verify job tasks
4
Analyze job tasks and add necessary knowledge tasks
5
Write terminal performance objectives
6
Sequence tasks and terminal performance objectives
7
Develop performance tests
8
Develop written tests
9
Develop draft of learning guides
10
Try out, field-test, and revise learning guides
11
Develop system to manage learning
12
Implement and evaluate training programs

Format of the book

Since it is a little out of the ordinary, we need to spend a minute looking at the organization of the rest of the book. Chapters 2 through 7 each include two of the 12 program development tasks, so each chapter following this one has two major sections, each covering one of the 12 tasks. The format of these chapters is somewhat different from most books. In an effort to practice what I am preaching, each section has been put together as a somewhat self-contained, competency-based 'learning package' designed to help you master one specific task. Each of these 12 sections contains the following components:

- *TASK:* This describes exactly what you will be able to do upon successfully completing that section. Each section covers one of the 12 tasks required to develop a competency-based program.
- *INTRODUCTION:* This is a very brief paragraph that explains why it is important to learn the particular task covered by that section.
- *TERMINAL PERFORMANCE OBJECTIVE:* This is simply a description of what you must be able to do to demonstrate that you have actually acquired that particular task.
- *ENABLING OBJECTIVES:* There will be two to four enabling objectives for each task. These are used to break the section covering each task into a few major parts. By completing the self-check, you will have an opportunity to find out if you successfully mastered each enabling objective before going on to the next.
- *SELF-CHECK:* For each enabling objective there is a self-check that will provide you with an opportunity to practice or apply what was presented. There may be questions to answer, samples to critique, or products to develop.

3

COMPETENCY-BASED TRAINING PROGRAMS

JOHN FOYSTER

'Competency-based training programs', *Getting to Grips with Competency-Based Training and Assessment*, TAFE National Centre for Research and Development, Leabrook, SA, 1990, pp.20–32.

The competency-based approach to training will be described in the following sections:

- What's involved in competency-based teaching and learning?
- Two examples of competency-based programs
- Putting it together—essential characteristics
- Putting it together—desirable characteristics.

What's involved in competency-based teaching and learning?

Competency-based training has been around for quite a while, but implementing it widely in the vocational area is a relatively new idea.

Since most readers will have had a 'traditional' education it makes sense to try to sort out some of the ways in which the competency-based training that this document describes differs from traditional teaching approaches.

It should be made clear right at the start that the competency-based approach means some radical rethinking about *the role of the learner;* the next box illustrates this.

> A truly competency-based system required that 'competence' be divorced, initially, from the needs of the learner and be viewed from the stance of the requirements and expectations of the economic and social system. An individual's performances are then matched to these expectations in order to determine the individual's competence on various aspects.
>
> Learning/training are the means of helping individuals meet these expectations.
>
> Assessment is the process by which we do the matching.

Note the word 'initially' in the first paragraph in the box. In order to generate effective competency-based training we first need to establish a structure in which we can try to describe what society needs, not what the learner needs. This should produce a program which can, if properly managed, take into account both the needs of individuals and the differences between them.

Rather than discussing competency-based programs in a theoretical way, we will describe two specific examples, then draw out the lessons to be learned. These two examples illustrate different approaches to competency-based training applied to slightly different situations.

In the descriptions which follow the emphasis is upon the essential characteristics rather than upon details of the programs themselves (which can be found in published reports).

Two examples of competency-based programs

Panel-beating

The first example is a South Australian panel-beating course. All the students taking this course would expect to be doing very similar body repair jobs on the completion of their training.

Teaching and learning in this program are well described in the various evaluation reports which have been issued. This program grew out of research studies and so it is not typical, but some of what was learned is likely to be generally applicable.

The competencies in this program were developed over a period of time, but were not checked for accuracy or 'verified' with industry until after the first year of the program. The individual competencies are relatively 'large' in size. They involved the performance of many individual skills.

Here, for example, are the five competencies listed under 'Dismantling and Re-assembly':

- remove and refit major body components
- remove and replace vehicle air-conditioning components
- remove and replace a section of vinyl fabric headlining
- remove and reassemble the hardware of a sedan type door
- drain, remove, store, and replace petrol tanks.

The total number of these individual competencies reported for this program in 1985 was 93. Learners are required to demonstrate that they have achieved each competence.

Food production

The second example is a UK Food Production course designed in Canada as well as some learning materials prepared (independently) in Canada. The students in England taking this course expect to be doing a range of jobs in the catering industry on the completion of their training. Accordingly the program is more complex than the panel-beating example.

The individual competencies are fairly small in size, each containing relatively few skills.

Here are five competencies extracted from the set of 32 competencies listed under the general heading 'Prepare vegetables and fruit':

- deep fry vegetables and fruit
- identify and select nuts

- fry vegetables and fruit
- select, prepare, and cook mushrooms
- sauté vegetables and fruit.

The total number of individual competencies listed for this program was 353.

In addition, in this program it is necessary to describe the standards relating to performance in far more detail than was the case for the panel-beating program. This is because the learners will make different uses of the skills they acquire.

Furthermore, in this case competence is reported in terms of a grade, from 0 to 6, with each higher grade implying additional skills, as follows:

0 No competence

1 Can perform the competence if constantly supervised and with some assistance

2 Can perform the competency with periodic supervision

3 Can perform the competence without assistance or supervision

4 And with more than acceptable speed and quality

5 And with initiative and adaptability to problems

6 And can lead others.

Such an approach is more adaptable for use by a range of learners. It also makes it possible to manage ideas about levels of competence which arise, for example, when talking about a 'competent test cricketer'.

Different grades can be required of different learners, depending on the position of the learner in the kitchen. So while the trainee butcher might not require any of these fruit and vegetable preparation competencies, the trainee vegetable chef would require quite high grades for all of them. Other positions would require different combinations of grades. (See Kenyon & Hermann)

Putting it together—essential characteristics

These two programs have common elements. They make it possible to identify common elements in competency-based programs.

1. *An occupational/job analysis was carried out*

   This is a fundamental element. Note that in the case of the panel-beating program a verification of the competencies with industry was not actually carried out until the program had been running for some time.

2. *There is a focus on competencies*

   In both programs the focus is on the competence to perform rather than on the ability to pass examinations.

   In competency-based training the theory relating to a particular competency has a place. It provides a framework or context within which the competencies are to be learned, but theory is not an end in itself. Accordingly, one would not expect to find a great emphasis on the testing of 'theory' in competency-based programs. It is much more important that the learner demonstrate competence in the practical skills to which the theory may relate.

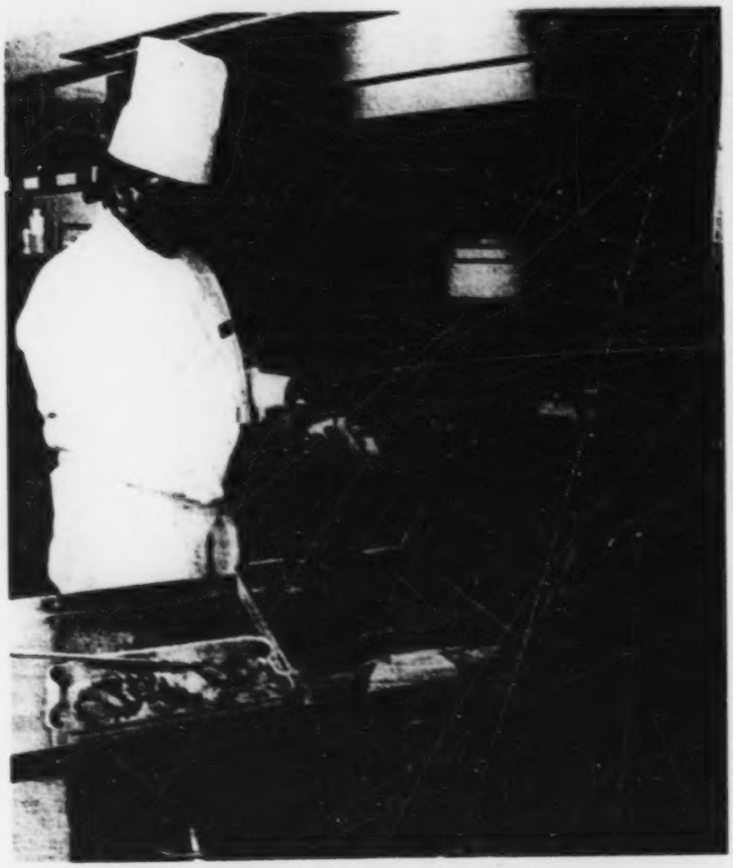
3 *Learners have access to statements of the competencies*

In both programs which have been described the learners knew beforehand exactly which competencies they had to achieve. In addition, in the food preparation course the learners knew which grade or level of competence they needed.

It has been found that giving learners prior knowledge of what is expected enhances learning. This isn't at all surprising, since if you are told what it is you have to learn you can focus your energies on what is essential.

4 *There are appropriate assessment procedures*

We are going to use some jargon words for a moment. We'll explain them after establishing the context.



(CALS Media Unit)

The Food Preparation program procedures were *criterion-referenced*. In the Panel-beating course the bulk of the assessment appears to be *criterion-referenced*, but at least in the first years of implementation there were some elements of *norm-referencing;* a practical project was assessed in percentage terms.

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Generally speaking, we expect assessment in these programs to be *criterion-referenced*. This is best understood by comparing it with the alternative, *norm-referenced assessment*, which we've also mentioned. A pure norm-referenced test is one which tells us that a carpenter named Bill does better at the test than does another carpenter named Col. But a norm-referenced test doesn't *necessarily* tell us whether *either* of them is a competent carpenter. They might both be competent; they might both be incompetent.

In competency-based teaching/learning we really are interested in competency (for example, in just who is a competent carpenter), and we are less interested in a competition between learners in somewhat artificial situations.

This does *not* mean, of course, that there can be neither competition nor encouragement to excellence in competency-based training. On the contrary, the fact that this form of education focuses on the competencies which are actually required promotes the achievement of meaningful excellence; excellence based upon achievement of recognized objectives rather than excellence based upon being a big frog in a small pond.

In brief, norm-referenced assessment concentrates on who is ahead of whom (and not on whether the race was finished according to standards and rules), whereas criterion-referenced assessment is not interested in the order in which the competitors finished, but in establishing that they each attained a minimum level of competence according to the stated rules.

Earlier we indicated that theory was mainly useful in terms of providing a context for the performance of skills, so the testing of theory as such would have limited use. Evaluation studies of the panel-beating program did report some concern that students in the competency-based program seemed less successful at a written knowledge retention test, indicating that some educators within competency-based programs nevertheless regard theory-testing as important.

Both of the variations in the panel-beating program (the use of norm-referenced testing and some emphasis on theory/knowledge testing) from what have come to be regarded as standards for competency-based programs are common to many early versions of these programs. In general, those implementing competency-based programs might expect that in the testing area, at least initially, there will be remnants of earlier approaches to teaching and assessing (norm-referenced testing in particular). These elements will have to be progressively removed in the shift to an emphasis on competence.

5 *The results are reported as competencies achieved*

Both programs operated in this way.

The focus on competencies continues with the reporting of what has been achieved. Norm-referenced testing usually leads to a letter grade or mark which is awarded for overall achievement. The natural way to report in a competency-based program is to list the competencies achieved.

6 *Detailed records are maintained*

Because the panel-beating course was a research/development/evaluation activity more detailed records than usual were maintained. Full records should normally be kept within the education system. The Food Preparation course maintained full records.

This very distinctive and desirable feature of competency-based programs is one which is sometimes overlooked, but should not be if the maximum benefit from competency-based programs is to be obtained. (This may be overlooked because the benefit—which is to the industry as a whole rather than to an individual employer or training institution—may *not* be obvious in the short term.) The maintenance of lists of individual competencies achieved by learners facilitates:

- progression over the learner's career—on moving to a new position the learner need only master the new required competencies, rather than undertake a whole course or program;
- transfer of credit between training organizations;
- sharing of responsibility and certification by each of the many involved parties—employers, colleges, training bodies—since each has to testify only in terms of a specific competency (or competencies) rather than for the whole of a program;
- improved educational services for learners since individual competencies can be targeted for development and mastery; and
- development of programs for competency maintenance or upgrading of skills within an organization.

These six characteristics might be described as 'essential', although some would argue with this classification. But there are many other characteristics which are usually found in competency-based programs. We might call these 'desirable' characteristics.

Putting it together—desirable characteristics

1 *Detailed support materials should be developed*

For both programs learners worked from a series of workbooks as well as ancillary materials. The scale to which the written materials may grow is indicated by the amount of material provided for the food preparation course, for which there were 174 workbooks and 254 associated colour microfiche.

2 *There should be a statement of criteria for each competency*

While in some cases the terms might be 'agreed' or 'understood', in most circumstances we need to say exactly what is meant. For example, what exactly is meant by the description 'fry vegetables and fruit'?

3 *There should be careful selection of competencies for each specific program*

The need for this has been made clear in the consideration of the carpentry study. Verification as the program runs, as well as before it commences, is also important.

4 *There should be an integration of theory and practice, with an emphasis on applications*

The reasons for this have been set out when considering the need to ensure that practical competence, rather than theoretical knowledge, is the outcome of the program.

5 *Programs should have a modular structure*

This approach, which produces a program based on 'bite-sized chunks', follows from the structure of the competencies within a given vocation. It also facilitates more efficient use of resources, as indicated in the next few points.

6 *The method of instruction should involve mastery-learning methods and should include immediate and comprehensive feedback to learners*

Since learners are in all cases required to master the competencies, it follows that the mastery-learning method, with learners having the opportunity to go on to another section of work as soon as they have mastered the present one, should be used. It also follows that learners must be formally told, as soon as is practicable, that they have mastered a competency.

7 *Criterion-referenced testing of skills already possessed should be available to learners on entry*

If learners already have a competency when they enter a program this should be discovered and the learners given the opportunity to move on to the competencies they have not yet mastered.

8 *Learning should be self-paced*

This follows immediately from the previous paragraphs.

9 *There should be open-entry/open-exit scheduling*

With learners entering with differing background competencies, and different rates of progression, this becomes almost mandatory. Absolute open-entry is, however, very expensive to establish, and is dependent upon the availability of suitable course materials, other resources and equipment. In practice, organizations need to be careful not to erect unnecessary bureaucratic barriers either to entry by suitable learners or to rapid completion of course requirements. In particular, the purely 'time-serving' notion of training should be recognized as being frequently counterproductive.

10 *There should be changes from conventional teaching-learning practices*

In particular, we would expect that learners will be given more assistance in 'learning to learn', and will be encouraged to accept more responsibility for their own learning; teachers will devote more time to acting as 'facilitators' of learning.

4

ASPECTS OF THE FRAMEWORK FOR THE IMPLEMENTATION OF A COMPETENCY-BASED VOCATIONAL EDUCATION AND TRAINING SYSTEM

VEETAC

VEETAC, 'Framework for the implementation of a competency-based vocational education and training system', *Framework for the Implementation of Competency-based Vocational Education and Training System*, VEETAC, Feb. 1993, pp.2–14.

CBT and training reform

The package of reforms which has become known as the National Training Reform Agenda has an important role to play in providing the necessary skill and competency base for Australia's economic development and for achieving and maintaining greater international competitiveness. The object of the reform process is to develop a vocational education and training system which is more cohesive, and which allows greater flexibility and choice in the modes of vocational education and training delivery. It should also create a balance between the provision of broad education and training, the needs of industry and occupations and the needs of individuals in choosing and pursuing their careers. Such a vocational education and training system will help produce a workforce which is more highly and flexibly skilled and hence improve productivity and efficiency.

The National Training Reform Agenda is the product of tripartite agreement between industry, government and unions, with the involvement of vocational education and training providers, on a range of matters relating to training reform. These matters include the development of national competency standards by industry parties, recognition of training on a national basis and changes in the structure and practices of public sector training establishments in all States and Territories.

Agreement has been fostered through arrangements set in place by the Ministers of Vocational Education, Employment and Training (MOVEET), their tripartite advisory group, the Vocational Education, Employment and Training Advisory Council (VEETAC), the National Board of Employment Education and Training (NBEET), the National Training Board (NTB) and the Australian Education Council (AEC). The agreement of Governments to establish, during 1993, the Australian National Training Authority (ANTA) is a further step in the evolution of the National Vocational Education and Training System.

The implementation of a competency-based system of vocational education and training is now widely recognised as the essential coordinating measure for bringing these agreed elements together to achieve vocational education and training reform.

CBT—how it works

CBT in Australia is both a system for vocational education and training, and an approach to learning.

CBT is an approach to learning which:

- places primary emphasis on what the learner can actually do
- is focussed on outcomes rather than on learning processes or time spent engaged in these processes
- is concerned with the attainment, and demonstration through application, of knowledge and skills to a specified level of competency
- is concerned with achieving flexibility in the use and adoption of national competency standards at the enterprise level whilst still safeguarding portability and the consistency essential to the achievement of national recognition and transferability.

CBT is a system made up of a series of linked processes. These processes are:

- national industry competency standards development
- curriculum development
- accreditation
- delivery
- assessment
- certification

This approach to learning differs from those which have traditionally characterised vocational education and training. In these approaches the emphasis, when awarding credentials, has been placed as much on course completion after a fixed period of learning as on the achievement of the skills and knowledge designated for the course. Educators and trainers designate skills and knowledge and develop programs based on the best available direction from industry, but often without a thorough analysis and identification of what is actually required by particular work processes, industries and enterprises.

Industry, through developing national competency standards, provides the foundations for competency-based vocational education and training, which includes skills, knowledge and their application and describe the level of performance expected in the workplace. Achievement of competency by meeting the standards, whether through structured vocational education and training or work experience, results in a credential, or statement of attainment. Neither the competency standards nor such credentials purport to describe all the abilities of individuals.

The competency-based approach recognises that people learn at different rates and in different ways. It also accommodates the fact that some skills and knowledge take longer to acquire than others. In this respect it is a flexible approach to learning, capable of meeting the needs of individual learners.

Recent developments in implementing CBT

The implementation of CBT is being supported by several related national vocational education and training initiatives:

- the review and revision of the National Training Board's National Competency Standards Policy and Guidelines
- the National Framework for the Recognition of Training (NFROT)
- the publication of a User's Guide to Course Design for Competency-Based Curriculum
- the development of a new system of credentials
- the establishment of pilot projects for the Australian Vocational Certificate Training System
- the work of the Mayer Committee on Employment-Related Key Competencies.

A national system of competency-based vocational education and training rests on the setting of national industry standards of competency. The National Training Board facilitates the development and endorsement of national competency standards. In fulfilling this role the Board:

- in consultation with industry and States/Territories, developed an Australian Standards Framework for eight levels of competency to which national industry competency standards will be aligned. This framework will play a crucial role in integrating and articulating all kinds of training.
- recognises Competency Standards Bodies which undertake the development of standards in NTB format for particular industries.
- endorses standards.

The Board has revised its Policy and Guidelines which has been reissued in an expanded form. It is called National Competency Standards—Policy and Guidelines Second Edition and has clarified and expanded guidance on the development, endorsement and review of standards and their place in the CBT system.

The recent agreement embodied in the National Framework for the Recognition of Training (NFROT) emphasises the key role of competency standards in the process of recognition. Competency-based training will facilitate and strengthen the arrangements for recognising training set down in the agreement.

CBT requires the development of vocational education and training curricula and programs and processes which deliver training to meet industry specified competency standards. VEETAC, through its standing committee the Australian Committee for Training Curriculum (ACTRAC), has produced a User's Guide to Course Design for Competency-Based Curriculum to assist vocational education and training providers in the development of new courses, and the translation of existing courses, into competency-based format.

The processes of standards setting, curriculum and program development (including the better linking of on and off the job training delivery), training delivery and recognition, and recognition of prior learning will depend on the collaboration between industry, training providers and training authorities.

Several important initiatives of direct relevance to the implementation of CBT have been sponsored by the national bodies responsible for the conduct of the training reform.

Early in 1992, the report prepared by the Employment and Skills Formation Council of NBEET The Australian Vocational Certificate Training System (the Carmichael Report) supported directions already taken. This Report advocated a nationally consistent system for the recognition of training, the accreditation of courses and the registration of training providers. It extended proposals that training should be provided wherever possible in a way that integrates workplace and off-the-job settings and facilitates access to a range of future training pathways. In particular, it extended this idea to include arrangements for young people still undergoing schooling.

Commonwealth, state and territory ministers have agreed to the implementation of the Australian Vocational Certificate Training System (AVCTS). To facilitate this, extensive pilot testing of the new arrangements is to be carried out. A working group has been established, including representatives of the industrial parties, to facilitate and coordinate the conduct of pilot projects.

The work of the Mayer committee, established by the AEC and MOVEET, also concerns vocational education and training provision for 15 to 19 year olds. The committee was set up to advise on the feasibility of implementing proposals contained in the Review of Young People's Participation in Post-compulsory Education and Training (the Finn Report, AEC, 1991).

In particular the committee has investigated the development and implementation of a set of Employment Related Key Competencies. These are the competencies that are believed to be essential for young people entering employment, further education or training. These competencies, while of obvious relevance to young people, also have relevance to the productive capacity of the nation and will have an impact on the content of training offered to people already in the workforce.

These Employment Related Key Competencies have been agreed by Ministers for Education (AEC) and for Vocational Education and Training (MOVEET) as the key competencies essential for all young Australians. The Mayer Committee has published its final report, Putting General Education to Work—The Key Competencies Report.

Further consultation by states and territories on implementing the key competencies has been recommended by AEC/MOVEET on the recommendations of the Mayer Committee's Report. These key competencies will provide a curriculum underpinning for the implementation of aspects of the AVCTS. They may also provide an improved information base across all States and Territories for evaluating the effectiveness of education and training programs.

The training environment

The training structure which now exists in Australia is critical in determining the context for the implementation of CBT. It is characterised by a range of diverse providers and settings for delivery. These include:

- TAFE institutions
- schools
- a variety of commercial training institutions

- industry owned and operated skills centres
- community based education centres
- enterprise off-the-job training schemes
- group schemes
- enterprise on-the-job training
- occupational or industry association education programs
- commercial conference and workshop providers

This range and diversity is one of the reasons why a framework for implementing CBT is necessary. The diversity of the vocational education and training environment implies that any proposal for the implementation of CBT should strive for maximum flexibility in the means by which providers may deliver training to national industry competency standards and other competency training requirements.

For further information:

- NFROT summary booklet 'Nationally Recognised Training'—Bringing it Together
- Overview of a Competency-Based Approach to Training—Kearns—July 1992
- Putting General Education to Work—The Key Competencies Report—Mayer—1992
- The Australian Certificate Vocational Training System Report—Carmichael March 1992
- National competency Standards Policy and Guidelines—National Training Board—second edition, October 1992

Recognition of training

A National Framework for the Recognition of Training (NFROT) has been agreed by the Commonwealth and State and Territory Ministers for Vocational Education Employment and Training. The National Framework, which became operational on 1 August, 1992, is underpinned by a ministerial agreement. It provides for the consistent recognition of vocational education and training across Australia by state and territory recognition authorities.

Courses, programs and providers recognised under The National Framework are signified by this logo.

NATIONALLY RECOGNISED
TRAINING

The National Framework comprises nationally agreed principles and processes for:

- accreditation of vocational education and training courses
- credit transfer through recognised training programs
- registration of vocational education training providers
- assessment
- the recognition of prior learning

A brief description of each of the provisions of The National Framework follows.

Accreditation of courses

Accreditation is the official recognition by state and territory vocational education and training recognition authorities that:

- the contents and standards of a course are appropriate to the credential that is received
- the course and methods of delivering it fulfil the purposes for which it was introduced
- the curriculum and assessment are based on national competency standards, where they exist.

Under The National Framework, accreditation only applies to sequences of training which lead to a credential eg. Associate Diploma, Advanced Certificate, Certificate.

For a course to be accredited it must comply with the following ten principles:

- Identified industry training need/market need
- Course standards appropriate to the requirements of the particular credential
- Competency-based training
- Multiple entry and exit
- Flexible learning
- Articulation
- Customisation of courses
- Promote access and participation
- Appropriate assessment
- Ongoing monitoring and evaluation

Credit transfer through recognised training programs

Under The National Framework, training program recognition through credit transfer only applies to sequences of training which have the same learning outcomes as one or more parts of an accredited course.

Satisfactory completion of the training program enables learners to gain a statement of attainment which details competencies gained and the credit transfer applicable when entering the relevant accredited course. For a training program to be recognised by state or territory recognition authorities, it must comply with the following five principles:

- The integrity of accredited courses
- Credit transfer shall aim to provide the maximum legitimate credit
- The whole training program, or an appreciable part of it
- Adequate recording
- Duration

Registration of vocational education and training providers

Registration is formal recognition by state and territory recognition authorities that a provider is competent to offer a particular accredited course or recognised training program. The provider is then able to issue the relevant credential or statement of attainment bearing the national logo. In order to be part of this national system, a provider seeking registration would have to indicate that trainers are competent to offer a particular accredited course or recognised training program, staff employed meet relevant minimum competency standards for trainers, students' funds are fully protected, that responsible and ethical relationships with students are established and that training is being conducted in an adequate and safe environment.

All training providers from the public, commercial and industry sectors have the opportunity to apply for registration.

Assessment

Assessment is a key part of quality training and consistent assessment across the country is major feature of The National Framework.

Most importantly, all assessment must effectively measure what competencies a person has gained in an accredited course or training program, or through prior learning (Recognition of Prior Learning—RPL).

The method of assessment may be flexible, but must measure what it says it measures, be reliable, valid, measure competencies which will be developed with input from industry and endorsed by the National Training Board, and make provision for recognition of prior learning.

Prior learning is recognised

The Framework caters for individuals who have gained competencies through informal education, work and life experiences—because not all competencies are acquired only through accredited courses or recognised training programs.

Recognition of prior learning (or RPL) has the potential to be of particular benefit to women and disadvantaged groups who have had less access to formal training. It also benefits many people who have not had any formal education or training since they left school, yet have never stopped learning.

It does not matter where, how or even why individuals have acquired skills, they can be recognised as long as they meet the required competency.

It is important that recognition of prior learning focuses on the competencies a person has acquired, not on how or when the learning occurred, and that training providers have a commitment to recognising the prior learning of individuals.

For further information:

- National Framework for the Recognition of Training (NFROT)—August 1992
- NFROT summary booklet *'Nationally Recognised Training'*—Bringing it Together
- Arrangements for the Recognition of Prior Learning in Australia-Recognition of Training Working Party, January 1993

Curriculum development and delivery

Vocational education and training curriculum must support the Training Reform Agenda and be competency-based. A format and guidelines for curriculum documents has been developed by VEETAC through its standing committee, the Australian Committee on Training Curriculum (ACTRAC), working in conjunction with the VEETAC Competency Based Training and Recognition of Training working parties.

The development of vocational education and training curricula includes:

- an analysis of the needs of learners in the context of requirements determined by industry/community
- Training program/course statements consisting of a series of modules with learning outcomes setting out the required knowledge and skills and whether they are to be acquired on the job or off the job.
- instructional and/or learning materials
- assessment materials related to skills acquisition and the recognition of prior learning
- delivery strategies
- trainers/teachers/instructors professional development materials

Characteristics of a competency-based curriculum:

Industry competency standards and training programs/courses

A competency-based training system is based on industry competency standards and provides a series of learning outcomes grouped into modules to form a structured training program or course. The structured training program or course will deliver in whole or in part the units of competency for the relevant industry competency standards.

Modules

A module is a specific learning segment which is part of a formal training program. Each module has a statement about how it fits into a course or training program and how it relates to relevant national competency standards.

Learning outcomes

Learning outcomes are used to connect the learning process with competency standards specified by industry and endorsed by the NTB. Where industry competency standards exist each learning outcome should relate to a unit of competency but not necessarily on a one to one basis. Each unit or element of competency may relate to more than one learning outcome, and each learning outcome may relate to one or more units or elements of competency.

Content summary

A content summary provides guidance for scope with a list of the topics to be covered. There is a recommended delivery strategy where appropriate.

On and off-the-job components

Where an accredited course comprises both on and off-the-job training programs, the curriculum should specify the components of each and their relationship, so that both providers and learners know what is expected of them.

Delivery

Delivery in a CBT system is the vehicle by which skills, knowledge and their application are conveyed in a way that ensures learners acquire the competencies specified for their industry, occupation or profession.

There is no prescriptive process for CBT delivery. However, delivery methods should:

- aim to achieve the NTB endorsed industry competency standards
- meet individual learners' requirements
- make use of materials and techniques relevant to the industry
- take place in settings relevant to industry
- be in keeping with NFROT
- be flexible

Delivery processes and methods should allow learners to make informed choices about their preferred method of learning and provide guidance on how to manage their own learning experiences.

Assessment

Learning outcomes will be accompanied by information about assessment. This will include:

- assessment criteria
- conditions under which assessment takes place
- advice on appropriate assessment methods

For further information:

- ACTRAC Users' Guide to Course Design for CBT Curriculum—September 1992

Assessment

> Assessment is the process of collecting evidence and making judgements on the nature and extent of progress towards the performance requirements set out in a standard, or a learning outcome, and, at the appropriate point, making the judgement as to whether competency has been achieved.

Another way of describing assessment within competency-based approaches to learning is to say it is criterion referenced. This means that it measures a person's performance or identifies their achievement in relation to criteria and not in relation to the performance of other learners or trainees.

It follows from this definition that, in the context of competency-based training, assessments will measure the range of knowledge and skills and their application against the standards developed by industrial parties and endorsed by the National Training Board for:

- a unit of competency expected in employment for a particular level of competency and/or
- a learning outcome of a training program.

A competency-based system encourages individuals to attain their full potential in that it allows them to be assessed for a particular level of competency and then to move on to achieve further competencies, should they wish to do so.

Purposes of assessment

Assessments can be taken to:

- assist and support learning by advising the learner about the quality of performance and the learner's rate of progress towards the achievement of the competency standard. This is known as formative assessment
- help learners and their supervisors determine their education and training needs; assessment for this purpose is called diagnostic assessment
- determine whether a unit of competency or a learning outcome has been achieved for the purpose of formal recognition of training; this kind of assessment is called summative assessment
- determine whether a person has achieved standards of competency which have not yet been formally assessed or recognised so that they may gain entry to or credit in recognised courses. This is assessment for the recognition of prior learning and refers to endorsed industry competency standards.

Each of these categories will have a legitimate place in a competency-based system of training.

Forms of assessment

There are various methods of determining learner achievement. They include:

- observation, where a trainer and or assessor observes a learner carrying out a particular task; the observation may be complemented by questions
- demonstration and questioning, where the observation consists of a structured practical demonstration, and the observer/assessor could see both the process and finished product
- pen and paper tests and essays which are often used to measure the extent of knowledge; they may also be used to assess deductive powers or as a complement to practical demonstration
- oral tests which can be used as an adjunct to practical demonstration or to test speed and accuracy or recall when these are essential to development of particular elements of competency
- projects—these are used on a largely unsupervised basis, though they may in some instances, involve working in groups; the completed project is used as evidence from which the assessor makes a judgement
- simulations, including computer simulations and role playing—where actual tasks and conditions are similar to real life situations

- portfolios—these are useful for assessing skills achieved in the past. Work samples provide a similar source of evidence
- computer-based assessment which can take the form of question and answer, or be interactive, so that the assessor can seek further responses or clarification.

The assessment method must be appropriate to the situation, the conditions and the expected performance to be assessed. Learners should also be encouraged to use these methods for self-assessment. This will assist in their learning and help them to make judgements about their readiness for summative assessment.

SECTION 2

HISTORICAL DEVELOPMENT OF COMPETENCY-BASED TRAINING

5

A HISTORY OF THE OBJECTIVES MOVEMENT IN EDUCATION

IVOR K. DAVIES

I.K. Davies, 'A history of the objectives movement in education', *Objectives in Curriculum Design*, McGraw-Hill, Maidenhead, UK, 1976, pp.44–60.

> 'Between the idea and the reality
> Between the motion and the act
> Falls the Shadow.' *T. S. Elliot*

Concern for definition and analysis have long characterized human activity. Indeed, philosophers have long held that man is essentially a goal-seeking animal, although terms like 'interests', 'desires', 'needs', 'wishes', 'expectations' and even 'cravings' have often been substituted. But man is also a value-loving animal, for values are part and parcel of experience within a living culture.

Values, however, are inseparable from goals. Sometimes they are identical, sometimes incompatible—but always associated within the context of human experience. For this reason, man's long-standing problem has involved, not merely identifying what goals and values are and should be held, but also eliminating the contradictions that prevent him from realizing them. Only freedom from these frustrations will enable man to realize both social and personal fulfilment.

Statements of goal and value, accordingly, have consistently reflected the prevailing philosophy of their time. Nowhere is this more clearly seen than in education, which seeks to reflect and apply the contemporary ideas of the time. Plato's proposals for education, for example, sought to create a *stable* society in which men could resist evil and follow the path of virtue. Cicero, in a time of great social debate, saw the educated man as an orator, for whom he designed a crude taxonomy of activities as the basis for a curriculum in rhetoric. He suggested six principal divisions for an oration, subdivided—in the case of the *inventio*—into seventeen ways of preparing what one could say. Milton, in a similar time of great social upheaval, sought to prepare men for public and private offices in time of peace and war by changing the goals of English education away from narrow, religious aims to greater participation in the life of the times. Values and goals were inseparably mixed.

Early antecedents of objectives

Strongly influenced by Cicero's six divisions of a speech or oration, Johann Herbart developed a systematic method of teaching which was long to influence teachers in England. For Herbart, the main business of education was to impart the most useful knowledge in such a way that it could be easily grasped and remembered. His suggestions for writing a lesson plan, with its heavy emphasis on the importance of clearly stating the aim, constitutes his most lasting legacy. Herbart (1924) puts forward five successive stages which teachers should follow in their lessons. These were: preparation (which reviews past experience and states the aim to be accomplished), presentation (studies particular cases), comparison (compares their particulars), association (draws generalizations), and application (applies learning to new situations). This sequence, together with his insistence on stating the aim of the lesson, was to be directly reflected in most English textbooks on teaching method until the middle years of this century.

Herbert Spencer, writing in 1860, in a time of great social and political change in England, pointed out that 'in order of time, decoration precedes dress'. He then goes on to argue that it was not a little curious that 'men dress their children's minds as they do their bodies, in the prevailing fashion'. Faced with this paradox, Spencer went on to propose a classification of human activities as a basis of educational objectives. It is a classification that others have followed until today, differing only in form and arrangement.

Herbert Spencer, who must be credited with the origin of the movement for explicit objectives, points out that 'had we time to master all subjects we need not be particular' (Spencer, 1860). It is high time, he suggests, 'to weigh with great care the worth of the results, as compared with the worth of the various alternative results which the same years might bring if otherwise applied.' The problem facing teachers was the means by which conflicting claims of various subjects could be discussed in a *methodic* way. 'Before there can be a rational *curriculum,* we must settle with things it most concerns us to know; or, to use a word of Bacon's, now unfortunately obsolete—we must determine the relative value of knowledges.' For Spencer, the rule or criterion of 'What use is it?' was the ultimate test.

Spencer points out that the application of this rule is fraught with difficulty, and perhaps could never really be achieved. Yet the task of building a curriculum relevant to the times was too important for it to be overlooked. The 'first step must be to classify, in order of their importance, the leading kinds of activity which constitute human life.' He then goes on to apply this method of analysis, and from the results recognizes five primary objectives for the curriculum of the school. These include: self-preservation, securing the necessities of life, rearing and disciplining offspring, maintenance of proper social and political relationships, and activities that make up the leisure part of life by gratifying tastes and feelings. The ideal education, he goes on to claim, lies in complete preparation in all these divisions. They represent a complete curriculum, in which each objective has a value both as knowledge and as a discipline or mental exercise. But in highlighting the need for analysis and teacher preparation, Herbart and Spencer created a need for 'method' which the time could not produce. Science was to provide an answer.

First clear conceptualizations of objectives

The nature of 'task' has long interested philosophers, but the scientific study of it is comparatively new. It was not until the closing years of the nineteenth century that Frederick Taylor, responding to the tremendous economic and social pressures which the Industrial Revolution had created, carried out the first systematic observations of the nature of work. In the years of the First World War, two of his colleagues—Frank Gilbreth and Henry Gantt—added to his analysis. They sought to discover the one best way of working, so that wasteful and inefficient activities could be eliminated. This classical approach, with its heavy emphasis on analysis, method and content, was highly influential. It demonstrated a visible application of science to the serious study of human performance and achievement.

The success of this approach in the context of work encouraged classroom teachers, faced with a vocationally orientated syllabus, to investigate the possibility of using it in education. A mounting pressure for free educational opportunities for the masses had culminated in England with the passing of the Education Act, 1902. The associated Elementary Code of 1904 charged public elementary schools with strengthening character, developing intelligence and fitting children 'for the work of life'. This was followed in 1905 with the publication of a Blue Book by the Board of Education entitled 'Handbook of Suggestions for the Consideration of Teachers and Others Concerned with the work of Public Elementary Schools'. The handbook took up the arguments of Herbart and Spencer, and laid foundations for curriculum and methods of teaching based upon a clear determination of goal. Emphasis on education as a preparation for the adult world of work was augmented by the Education Act, 1918 (Fisher Act), which added the extra goal of good citizenship.

But how were these goals to be achieved? How were teachers to be trained and prepared for the vastly increased numbers of school children waiting to be educated? Applied science with its seeming emphasis in 1918 on finding the one best way of doing things, and its systematic approach to the solution of the problem, seemed to offer a way of coping. Franklin Bobbitt and Werrett Charters, both involved with the training of teachers in America, acknowledging their debt to Spencer, suggested a model both for the classroom and for the training of teachers which could also be adapted for English needs.

The first systematic treatise on the theory of curriculum was by Franklin Bobbitt (1918). In essence, Bobbitt and Charters took Herbart's thoughts on the importance of stating the aim, and added Spencer's method of analysis, to distinguish 'ideals' and 'activities' in the manner of Frederick Taylor. These two components of an objective were to characterize not only the curriculum of the school as a whole, but also classroom practice for some twenty years. While their ideas may seem very mechanistic to us today, in an age of disenchantment with science, they should really be judged in the contest of the ideals of their time. The work of Bobbitt and Charters, together with their views on the importance of stating objectives, needs to be studied so that we can better understand the nature of the concept and its proper role in education today.

Franklin Bobbitt

Franklin Bobbitt, a professor of education at the University of Chicago, was concerned in the early years of the century with replacing an inherited curriculum with a new one more in tune with the times. For this 'new methods, new materials, and new types of experience must be employed'. In his now classic chapter 6, on scientific method as applied to curriculum construction, which still repays reading, Bobbitt argues the case for objectives.

> So long as objectives are but vague guesses, or not even that, there can be no demand for anything but vague guesses as to means and procedures. But the era of contentment with large, undefined processes is rapidly passing. An age of science is demanding exactness and particularity.

For Bobbitt, as with teachers in England, the major task was drawing up a relevant curriculum, 'a place of deeds', and science seemed to suggest the way. Analysis was required, as wide as life itself, and as it 'finds all the things that make up the mosaic of full-formed human life, it discovers the full range of educational objectives'. The school curriculum could then aim at achieving those objectives that were not attained as a result of the general experience of living.

Bobbitt saw the need for using objectives so as to determine performance problems, or what he sometimes called 'the shortcomings of individuals after they have had all that can be given by undirected training'. These problems, he argued, would be revealed by the presence of imperfections, errors, shortcomings.

> Like the symptoms of disease, these point unerringly to those objectives that require the systematized labours of directed training. Deficiencies point to the ends of conscious education. As the specific objectives upon which education is to be focussed are thus pointed out, we are shown where the curriculum of the directed training is to be developed.

As an example, Bobbitt describes how teachers in Indianapolis studied the major occupations of the city, and for each occupation reported a list of objectives which children would need to realize in order to earn a living in that capital when they left school. Each list included: a list of tools and machines involved, materials used, knowledge of jobs and processes needed, mathematical operations employed, items of science needed for control purposes, elements of drawings and designs used, characteristics of the English language needed, elements of hygiene involved and the needed facts of economics. Then by noting shortcomings and mistakes, a related curriculum was designed. Similar analyses were carried out by teachers in some of the industrial areas of England, and schemes for vocational education determined.

In a later book, Bobbitt (1924) devoted two chapters to objectives. First, he describes a more ambitious scheme of task or 'activity analysis' from which objectives can be extracted. He then goes on to give page after page of the kind of statement of objectives that he personally found useful. A sample of these is illustrated in Fig. 3.1. Also included in Fig. 3.1 are some objectives given by Guiler (1926). Similar listings of objectives were published at the same time by Pendleton for English (1581 objectives), and Billings for social studies (888 important generalizations for teachers). It is not surprising that the curriculum movement, in the early 1930s, was to collapse under its own weight.

Fig. 3.1. Some examples of the kind of statement of objectives recommended by two early pioneers

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Examples from Franklin Bobbitt (1924):

- Ability effectively to organize and present orally one's thoughts to others: (a) in conversation; (b) in recounting one's experience; (c) in more serious or formal discussion; (d) in oral report; (e) in giving directions; (f) to an audience.
- Ability to sharpen, adjust, clean, lubricate, replace worn or broken parts, and otherwise keep household and garden tools and appliances in good order and good working condition.
- Ability to collect, organize, and interpret facts needed in the exercise of each (mental) ability; and to arrive at conclusions justified by the evidence.

Examples from Walter Guiler (1926):

- Ability to read Roman numerals through 50 (for 8-year-olds).
- Ability to subtract first 45 combinations (7-year-olds).
- Ability to multiply four-place numbers by fractions—denominators being limited to 16 (10-year-olds).
- Ability to find the perimeter of (a) rectangle (b) square (c) parallelogram (11-year-olds).
- Ability to plan a personal budget (12-year-olds).
- Ability to find the cost of stock and bonds at a given market value (13-year-olds).

(Reproduced from Bobbitt, F. (1924) *How to make a curriculum*. Boston: Houghton Mifflin; and Guiler, W. S. (1926) *Objectives and activities in arithmetic*. Chicago: Rand McNally)

In the course of his suggestions for the writing of objectives by teachers, Bobbitt distinguishes between 'ultimate objectives' (written in a nonquantitative form) for the complete school curriculum, and 'progress objectives' (sometimes quantitative in form) for each age group or class. Whatever their form, he argues that 'objectives should be stated in definite terms' of what the pupil will do or experience, so that it is possible for teachers 'to know with certainty at what they are aiming. It is also possible for parents and students to understand'. Everyday language should be employed in their writing, so that they are easily intelligible. General, unanalysed objectives, he suggests, should be avoided, since they are practically useless for curriculum making. For example, he says, 'ability to care for one's health, ... is too general to be useful. It must be reduced to particularity; ability to manage the ventilation of one's sleeping room, ability to protect one's self against micro-organisms, ability to care for the teeth, and so on.' Objectives that are vague or high-sounding like 'character-building', 'culture' and 'self-realization' should be avoided. Professor Bobbitt did not delude himself that writing objectives in this degree of particularity was easy for teachers, but he saw that this was the only way to build a curriculum, guide teaching and inform parents and teachers.

Werrett Charters

Acknowledging his debt to Herbert Spencer, Franklin Bobbitt and John Dewey, Werrett Charters published his text *Curriculum Construction* in 1924. In it he puts forward a functional theory of systematic curriculum design, together with detailed syllabuses for a wide range of educational and vocational subjects. The book ends with a series of miscellaneous studies, including details of what must be the first 'job analysis of teaching', a task still occupying NFER with its Teacher's Day Project in junior and secondary schools. Almost 140 duties are listed, and from a study of them Charters hoped that it would be possible to organize courses and curricula 'to prepare undergraduates to begin teaching, to improve the teaching of teachers now in service, to improve and liberalize the work of teachers' generally.

Influenced by the analytical methods of Spencer and Taylor, Charters points out that the first step in curriculum construction begins with the definition of major objectives, see Fig. 3.2. He points out that the decision as to what is included must be left to teachers, and must reflect the ideals of the time. Once the objectives of the curriculum have been defined, they should be analysed into 'ideals' and 'activities'. Using the methods of job analysis (involving introspection, interviews, questionnaires, and actual analyses of what was done on a task) popularized by the army in the First World War, Charters argued that task should be broken down to 'the point where the student can learn without assistance'. Subsequent 'difficulty analysis' would indicate the areas upon which special emphasis must be laid in the teaching of the task.

Fig. 3.2. Werrett Charter's steps in curriculum construction

> ... the rules for curriculum construction may be stated as follows:
>
> First, determine the major objectives of education by a study of the life of man in its social setting.
>
> Second, analyze these objectives into ideals and activities and continue the analysis to the level of working units.
>
> Third, arrange these in the order of importance.
>
> Fourth, raise to positions of higher order in this list those ideals and activities which are high in value for children but low in value for adults.
>
> Fifth, determine the number of the most important items of the resulting list which can be handled in the time allotted to school education, after deducting those which are better learned outside of school.
>
> Sixth, collect the best practices of the race in handling these ideals and activities.
>
> Seventh, arrange the material so obtained in proper instructional order, according to the psychological nature of children.

(Reproduced from Charters, W. W. (1924) *Curriculum construction*. New York: Macmillan)

In the course of his discussion, Charters points out that the reason it is impossible to derive a curriculum from the aims of writers like Plato and Comenius 'is due to the fact that their aims are statements of *ideals isolated from activities*'. Aims indicate emphasis, not definition. For this reason, Charters carefully distinguishes between satisfaction, ideals and activities in the building of a curriculum. This is an important distinction which is *not* present in much of the current literature on objectives. Satisfaction is the feeling of achievement that comes from engaging in a successful and worthwhile activity. Ideals or goals are the objective equivalents of satisfaction or dissatisfaction. In other words, satisfaction–dissatisfaction is the value or worth place on the goal. Activities, on the other hand, are the means or actions (i.e., work) 'through which dissatisfaction is eliminated and satisfaction obtained'. The term includes both physical and mental actions. Unless activities are given a breadth of content, Charters believes that 'it is not possible for us to claim that men strive to score satisfaction through activities under the domination of ideals'.

Within this context, Charters develops his ideas on the nature of objectives. He points out that Spencer 'having set up the aims of education as complete living, analyzed it not by showing what qualities were necessary for complete living, but by indicating what activities were to be carried on.' Since Spencer had an interest only in the broader outlines of education, Charters points out that he did not subclassify the activities into duties or actions, so that it is not possible to determine the subject matter necessary, nor did he relate activities to ideals. 'Without taking ideals into consideration, we cannot determine the form in which activities shall be carried on.'

Distinguishing between vocational and non-vocational objectives ('the cultural core'), Charters argues that the reason so little attention is paid to major objectives is that they have been so difficult to determine and so indefinite of content. Statements of objectives in education lead to confusion unless they are written under two forms: ideal objectives and activity objectives. Ideals, like 'good citizenship' are determined by one method, activities, like the duties of a 'good citizen', by another. Each ideal, of course, is reached by many small steps. 'The task of accomplishing ideals and performing activities is so large that it is absolutely necessary for them to be broken down into working units of the size of human ability, so that these may be mastered one by one.' Once an analysis of objectives has been carried out under these two headings, it is possible to determine the relationship between ideals and related activities by means of a graph or analysis chart.

Werrett Charters and Douglas Waples (1929) combined together as joint authors and they reaffirmed the need for detailed analysis, based in this case both upon what teachers did as well as upon what facts and principles were believed to be pertinent to the teacher's role. From this analysis a curriculum for teacher training could be identified, and used to identify and organize objectives, activities (both of the teacher and of the pupil), and methods in a form most likely to be useful. The course of teacher training, they suggested, could then be organized either upon 'a severely logical basis or on the basis of activities'.

Modern formulations

Franklin Bobbitt and Werrett Charters contributed—in effect—a behavioural description of curriculum construction founded upon a clear formulation of objectives. It reflected the ideals of the time, with its emphasis on education as a preparation for a life of work, as well as its concern with the idea of applying the methods of science to the problems of teaching. Gradually their ideas were absorbed into teacher and teacher-training, but as times changed so did the priorities placed upon their methodology.

Bobbitt (1941) remarked that the 'good life is the thing that is to be learned, and the pupils learn by living it. Families, schools and the general society provide the necessary conditions'. Harold Benjamin, in his introduction to Bobbitt's book, points out that Bobbitt 'has not spoken very much of the 'older education', being content, except for necessary comparisons, to let it rest in peace'. The text accordingly makes no mention of Herbart and Spencer, curriculum analysis nor detailed objectives. It is now 'vision that orients and guides', rather than the approach of applied science, with its emphasis on systematic analysis, which had tended to dominate the first thirty years of the century.

The emerging romantic movement, which was somewhat to characterize the 1930s and the 1940s in both America and Britain, had no place for the 'older education' with its search for the one best way of doing things. Child-centred approaches and freedom replaced subject-centred procedures and discipline. Not surprisingly, the interest in detailed analysis and specific objectives lapsed and was not revived until the early 1950s. 'Living attitudes and values' became more important than 'acquiring knowledge'. The early curriculum movement, therefore, collapsed in England and America with the rejection of the values implicit in the applied scientific approach.

Interest in curriculum renewal made no great headway until the late 1950s in America, when national pride was dealt a severe blow by the Russian success with Sputnik, and vast financial assistance was made available for 'educational reform'. Initially, this interest was focused on new curricula and teaching procedures in science and mathematics, but developments soon spread to other subjects—particularly languages. Associated with these changes was a renewed interest in the importance of planning, and the possibilities arising from the application of technology to the problems of teaching and learning.

Ralph Tyler

Clearly influenced by Charters, Ralph Tyler kept the lamp alight by taking the idea of detailed objectives into the area of test construction. The 1930s saw a great flurry of interest in testing, as a result of a growing sensitivity towards the importance of individual differences in ability, aptitude and achievement. In 1929, faced with the problem of designing diagnostic tests that were 'scientific', Tyler seized upon the idea of objectives as offering the basis for a useful methodology. He argues that teachers:

> ... concerned should formulate the course objectives, define the objectives in terms of student behaviour, collect situations in which students are to indicate the presence or absence of each objective, and provide the method of evaluating the students' reactions in the light of each objective. The test technician sets up the specifications for the course objectives and for the definition of objectives in terms of students' behaviour ...
>
> This brief description should also have revealed certain features in these techniques of test construction which are different from those usually followed. The first of these is the analysis of objectives in the place of the analysis of content alone. This reveals a much wider field for objective testing

> than is likely to occur to the test constructor who depends upon an analysis of content …
>
> The second difference between this technique and the usual method is that the test situations used are not selected from a few general types of tests now in use, but are obtained directly from the analysis of the course objectives in terms of student behaviour. This permits the development of diagnostic tests measuring each objective separately. It gives a criterion of validity which is probably more valid and certainly more exact and reliable than a teachers' marks. (Tyler, 1932)

Thirty years later these ideas would be further developed by evaluators, for here is the first description of what would later be called 'criterion testing' or criterion evaluation. Here also are some of the roots of what later would become known as 'programmed learning'.

It was not until 1950, however, that the idea of objectives as a cornerstone of curriculum development and classroom teaching was carried further with the publication of a new book by Ralph Tyler *'Basic principles of curriculum and instruction'*. This book represents another benchmark in the history of objectives, for it reminded teachers of the importance of specific objectives after years of 'progressive' education. Written twenty-five years ago, as a syllabus for a new course, it has been reissued thirty times in book-form both in this country and in America. Developing the ideas of Werrett Charters, the 'book outlines one way of viewing an instructional program as a functional instrument of education'. The text, in effect, is the logical culmination of the work of Herbert Spencer, and puts forward a systematic, all-embracing methodology for objectively studying—not answering—four fundamental questions which teachers should consider when developing a curriculum and planning teaching. The four questions posed are concerned with the purpose, content, organization and evaluation of school experience. A series of techniques are then suggested for answering them.

Tyler points out that:

> Many educational programs do not have clearly defined purposes. In some cases one may ask a teacher of science, of English, of social studies, or of some other subject what objectives are being aimed at and get no satisfactory reply. The teacher may say in effect that he aims to develop a well-educated person and that he is teaching English or social studies or some other subject because it is essential to a well-rounded education. No doubt some excellent educational work is being done by artistic teachers who do not have a clear conception of goals but do have an intuitive sense of what is good teaching, what materials are significant, what topics are worth dealing with and how to present material and develop topics effectively with students. Nevertheless, if an educational program is to be planned and if efforts for continued improvement are to be made, it is very necessary to have some conception of the goals that are being aimed at. These educational goals become the criteria by which materials are selected, content is outlined, instructional procedures are developed and test examinations prepared. All aspects of the educational program are really means to accomplish basic educational purposes. Hence, if we are to study an educational program systematically and intelligently we must first be sure as to the educational objectives aimed at. (Tyler, 1950, chapter 1)

After considering how objectives are obtained, Tyler goes on to consider how objectives should be stated. Then he puts forward a methodology that is as relevant and useful as any currently available. This methodology will be considered in a later chapter as a viable alternative in many situations to that suggested bv Robert Mager in 1962, who is usually regarded as having started the movement for developing 'behavioural' objectives.

Tyler next goes on to discuss three alternative ways of stating objectives. First, from the viewpoint of what things a teacher should do, second, from the viewpoint of concepts, generalizations or other elements that are to be covered; and, finally, from the viewpoint of generalized patterns of behaviour such as were suggested by Johann Herbart. He goes on: 'the most useful form of stating objectives is to express them in terms which identify both the kind of behaviour to be developed in the student and the content or area or life in which this behaviour is to operate.'

Behaviour *and* content are the two dimensions to be included in an objective. However, Tyler argues that a series of such statements, strung out in a list form, are unlikely to represent in an adequate manner the structure of knowledge which they supposedly portray. Following Werrett Charters, who put forward the concept of an analysis chart in 1924 'in order to clarify the relations between ideals and activities', Tyler suggests using 'a graphic two-dimensional chart to express objectives concisely and clearly'. (Incidently, this was later taken up in 1964 by the Schools Council in London, and recommended to teachers.) Along one axis of the graph is behaviour, and content is along the other. The relationship between behaviour and content is indicated at the intersection of the columns and rows with an X. This two dimensional chart becomes, in effect, 'a concise set of specifications to guide the further development of the course'.

Virgil Herrick and Ralph Tyler (1950) edited a monograph which reported the proceedings of a conference, held at the University of Chicago two years earlier, concerned with the need to develop a more adequate theory of curriculum. Herrick and Tyler argue 'that curriculum development without curriculum theory is tragic and that curriculum theory without curriculum development denies the essential purpose of theory.' In other words, theory and practice must go hand in hand if real progress is to be made.

Many of the conference papers deal with the organization of the curriculum and the problems of sequencing, and the one by George Barton is outstanding. Concerned with the problem of the origin of objectives, Barton argues that developing a better theory of curricula will not solve the problem of where they come from. What is needed, he suggests, is a systematic way of making value judgements when we formulate objectives, some general theory of value which can guide teachers faced with the dilemma which choice imposes on them. Defining objectives is all very well, but how are they to be identified and chosen? Values are not objective nor even eternal. As Shakespeare has Hamlet remark, 'There is nothing either good or bad, but thinking makes it so'. What we need, George Barton argues, is a set of principles that will *'permit us to deal with systems as systems,* as well as with their component parts'. Stating objectives in clear, explicit terms only makes the problem more obvious and pressing. The choice of what goes into the curriculum is too important a decision to be left solely in the hands of curriculum specialists.

Benjamin Bloom

Encouraged by the ideas of Ralph Tyler on testing and evaluation, in 1948 Benjamin Bloom and his colleagues in Chicago and Michigan decided to put together a needed 'theoretical framework which could be used to facilitate communication among examiners'. It was felt that such a framework would help in exchanging ideas and materials about *testing*, as well as stimulate research. After a great deal of discussion, it was finally decided that 'such a theoretical framework might best be obtained through a system of classifying the goals of the educational process, since educational goals provide the basis for building curricula and tests and represent the starting point for much of our educational research'. Not surprisingly, Bloom dedicated the report to Ralph Tyler 'whose ideas on evaluation have been a constant source of stimulation to his colleagues in examining, and whose energy and patience have never failed us'.

In their meetings, which spread over eight years before the publication in 1956 of their first report on educational objectives in the cognitive domain, *Taxonomy of educational objectives*, a number of problems arose. Could educational objectives be classified? Would a taxonomy distort the thinking of teachers planning a curriculum? Would a taxonomy lead to fragmentation and atomization of educational purposes? However, it was felt that educational objectives have their counterpart in the behaviour of people, and, since behaviour could be observed and described, there was no reason to believe that the statements could not be classified or would not be useful to teachers. It was argued that the problem of fragmentation could be dealt with by casting the taxonomy at a level of generality, where the loss due to fragmentation would not be too great. In any case, the arrangement of the classification system would emphasize relationships between objectives rather than their particularity.

The original plans called for a complete taxonomy in three major parts—cognitive, attitudinal (or affective) and psychomotor. Only two have been published, but the work of Harrow (1972) on the psychomotor domain, is sufficiently in tune with Bloom (1956) and Krathwohl, Bloom and Masia (1964) for it to be an acceptable surrogate. In all three instances, the taxonomies are designed to classify 'the intended outcomes of the educational process'. There is no attempt to classify teaching methods, the ways teachers relate to children, or the materials that they use. 'What we are classifying is the *intended* behaviour of students—the ways in which individuals are to act, think or feel as a result of participating in some unit of instruction.' It was outside their task, they believed, to determine the value to be placed on the degree of achievement represented by the objectives.

Bloom and his colleagues (Bloom, 1956, Chapter 2) discuss the nature of educational objectives and curriculum development. Acknowledging yet again their debt to Ralph Tyler, they point out that the problems of developing a curriculum are usually considered in terms of objectives, content, organization and evaluation. Educational objectives, they argue, are:

> ... explicit formulations of the ways in which students are expected to be changed by the educative process. That is, the ways in which they will change in their thinking, their feelings, and their actions. There are many possible changes that can take place in students as a result of learning experiences, but since the time and resources of the school are limited, only a few of the possibilities can be realized. It is important that the major objectives of the school or unit of instruction be clearly identified if time and effort are not to be

> wasted on less important things and if the work of the school is to be guided by some plan.

Formulating objectives in this way, they believe, is a matter of conscious choice based upon knowledge and past experience. The final selection and sequencing of the objectives for classroom use depends upon 'making use of the learning theory and philosophy of education which the faculty accepts'.

The actual details of the three taxonomies will be dealt with in chapter 8. However, in brief, the cognitive domain is seen by Bloom and his colleagues to be composed of six divisions, of which knowledge is the first. The other subdivisions of intellectual abilities and skills consist of comprehension, application, analysis, synthesis, and evaluation. Related to these are the five facets of the effective or attitudinal domain: receiving, responding, valuing, organization and characterization by a value or a value complex. Anita Harrow's classification for the psychomotor area consists of six levels: reflex movements, basic-fundamental movements, perceptual abilities, physical abilities, skilled movements and non-discursive communication (i.e., expressive and interpretative movement). In all three domains, these primary levels are broken down into further subdivisions, all of which re-emphasize the necessity of attending to the great richness and variety which objectives can take.

Since the publication of the *Taxonomy*, a number of writers have applied the ideas to their own areas. For example, Wood, of the National Foundation for Educational Research, applied the taxonomy in 1968 to the teaching of mathematics. Similarly, Eggleston and Newbould applied it in 1969 to the teaching of science, while Eggleston and Lobel applied it in 1969 to the teaching of history in English schools. Finally, Edgar Stones in 1972 proposed a taxonomy of educational objectives for educational psychology, which relates closely to the problems of teaching practice. What Bloom and his colleagues had seen as a contribution to the teacher as a test maker and evaluator has become a major stepping stone in an awakened interest in the development of curriculum and teaching: the wheel of progress turned from curriculum to testing, and from testing back to the curriculum.

Hilda Taba

Seeking to reexamine the theoretical foundations of curriculum development as a result of the wave of sharp criticism of the schools that followed the Second World War, Hilda Taba (1962) published her important book *Curriculum development: theory and practice*. It follows the classic point of view. The book had been twenty years in the making, and reflects her debt to Ralph Tyler and Werrett Charters, with its focus on a scheme of thinking rather than on specific remedies or solutions. Arguing that curriculum development is sterile if it fails to encompass change in classroom practices, Taba considers the objectives of education, their functions, the principles that should guide their formulation and schemes of classification before she outlines various types of behavioural objectives and means for translating them into specific statements useful to teachers.

Taba feels that:

> ... a platform of objectives is needed to provide a common consistent focus for the multifarious activities we call the curriculum. The program of the school is managed by many people. There are many subjects, classes and teachers.

> Some unity of emphasis, some common focus is needed to make these efforts converge on certain common, consistent goals.
>
> Furthermore, many types of growth cannot be developed without a consistent emphasis throughout the whole program.

A clear distinction is made between two levels of objectives. First, general objectives that involve what she calls 'school wide outcomes', and more specific objectives that describe the behaviours to be attained. These specific objectives *guide* the decisions that have to be made in regard to the curriculum, suggest what should be covered, what should be emphasized, what content should be selected and what learning experiences should be stressed. She then offers a series of six recommendations, as shown in Fig. 3.3. Although she apparently lacked a systematic technique for writing specific objectives, Taba's book marks the beginning of the current or 'new' interest in educational objectives among teachers interested in curriculum matters.

Fig. 3.3. A list of recommendations for teachers concerned with writing objectives

- A statement of objectives should describe both the kind of behaviour expected and the content or context to which that behaviour applies.
- Complex objectives need to be stated analytically and specifically enough so that there is no doubt as to the kind of behaviour expected, or what the behaviour applies to.
- Objectives should also be so formulated that there are clear distinctions among learning experiences required to attain different behaviours.
- Objectives are developmental, representing roads to travel rather than terminal points.
- Objectives should be realistic and should include only what can be translated into curriculum and classroom experience.
- The scope of objectives should be broad enough to encompass all types of outcomes for which the school is responsible.

(Reproduced from Taba, H. 1962. *Curriculum development: theory and practice*. New York: Harcourt, Brace & World)

Robert Mager

Early in 1960, a behavioural sciences research project was established in the Central Research Laboratory of Varian Associates, a Californian electronics company, with the idea of suggesting ways in which programmed learning techniques could be introduced into existing training programs in the company. Robert Mager, who had previously been a member of the staff of the Army Human Research Unit at Fort Bliss in Texas where he had become interested in programmed learning, joined forces with John McCann, the chief factory engineer, to investigate the possibilities of designing a new type of programmed learning course for university graduates joining Varian. Since the concept of objectives was then being regarded with renewed interest among teachers concerned with the new curriculum movement as well as among programme writers, Mager decided to try and develop some procedures for specifying them in a useful form. As Mager tried to design criteria for deciding whether an objective was usefully stated, McCann prepared them for the training programme they were designing.

As a result of this, Mager decided to publish a 'book for teachers and student teachers ... for anyone interested in transmitting skills and knowledge to others ... a book about preparing instructional objectives—a basic step to successful learning' (Mager, 1962). The text was written specifically for teachers who were training to be programmers, but it soon won for itself wide acceptance among teachers at large. Rarely during the history of education has such a small book (62 pages), with so much blank paper, been as influential on both the thinking and practice, loves and fears of both British and American teachers. It is little wonder that so many people believe that 'objectives' began with Mager.

John Gilpin, in his foreword to Mager's book, points out that everybody in 1962 seemed to be talking about the importance of defining objectives, but almost nobody was doing anything about it. Books on education were stressing their importance, people were saying that defining them was the first step, and some materials even described what objectives looked like. But there was nothing outlining what you *did* when you prepared them. As Mager himself wrote:

> Before you prepare instruction, before you choose material, machine, or method, it is important to be able to state clearly what your goals are. This book is about instructional objectives. In it I will try to show you how to state objectives that best succeed in communicating your intent to others. The book is NOT about the philosophy of education, nor is it about *who* should select objectives, nor about *which* objectives should be selected.

The book was not intended as the last word on the subject, nor, as we have seen, was it the first. What Mager has done, even more so in the second enlarged edition published in 1975, is to supply a readable, practical approach to what you do when you sit down and write objectives. He believed very strongly that 'if you're not sure where you're going, you're liable to end up someplace else—and not even know it.'

Conclusion

Some of the difficulties that teachers sometimes have with the concept of objectives stems from the apparent dogmatism associated with the procedure. The idea, as we have seen, is not new, and its origin can be traced back to Johann Herbart and Herbert Spencer in Germany and England. Thereafter, within the context of the so-called scientific approach to the solution of problems in education, with its emphasis on systematic analysis, which tended to dominate the first thirty years of this century, the concept became predominantly American as a result of the work of Franklin Bobbitt and Werrett Charters. When the curriculum movement collapsed in the 1930s, Ralph Tyler kept the idea alive in the testing and evaluation world, until he reintroduced it into the 'new' curriculum in 1950. Hilda Taba and Robert Mager, the former in the area of curriculum theory and the latter in the area of programmed learning, repopularized the technique as an essential part of the design process in curriculum development and teaching.

But objectives also have to be seen within the context of a value structure. They are but one component of a larger design process characterized by a systematic approach towards both curriculum and teaching development. This approach values analysis, the breaking down of an entity into its constituent parts, as well as deliberate step-by-step planning, organizing and evaluation procedures. All of this rests upon an assumption about the nature of man and the nature of education. It is as well to bear in mind that other assumptions are possible, other alternatives are available. What has to be decided is not whether one assumption, or one alternative, is better than another. The problem is more complex than that. What has to be decided is: 'When is one assumption more appropriate than another?' 'When are objectives appropriate, and when are they likely to be unhelpful?'

Suggestions for further reading

LAWTON, DENNIS (1973) *Social change, educational theory and curriculum planning*. London: London University Press.

SPENCER, HERBERT (1910) *Education: intellectual, moral and physical*. London: Appleton, pp.1-87. [An essay first published in 1860].

TYLER, RALPH (1960) *Basic principles of curriculum and instruction*. Chicago: University of Chicago Press.

Bibliography

BLOOM, B . S., ed. (1956) *Taxonomy of educational objectives. Handbook 1: Cognitive Domain*. New York: McKay.

BOBBITT, F. (1918) *The curriculum*. Boston: Houghton Mifflin.

BOBBITT, F. (1924) *How to make a curriculum*. Boston: Houghton Mifflin.

BOBBITT, F. (1926) *Curriculum investigations*. Chicago: University of Chicago Press (Supplemental Educational Monograph No. 31).

BOBBITT, F. (1941) *The curriculum of modern education*. New York: McGraw-Hill.

CHARTERS, W. W. (1924) *Curriculum construction*. New York: Macmillan.

CHARTERS, W. W. and WAPLES, D. (1929) *The Commonwealth Teacher-training Study*. Chicago: University of Chicago Press.

CICERO (Translated by H. M. Hubbell) (1949) *Cicero: De inventions, de optimo genere oratorum, topica*. Cambridge .Massachusetts: Harvard University Press (Loeb Classical Library).

EGGLESTON, J. F. and R. F. LOBEL (1969) 'Assuming attainment in history'. In J. F. Eggleston and J. F. Kerr, eds. *Studies in assessment*. London: English Universities Press.

EGGLESTON, J. F. and C. A. NEWBOULD (1969) 'Assessing attainment in science at CSE level'. In J. F. Eggleston and J.F. Kerr, eds. *Studies in assessment*. London: English Universities Press.

GAGNÉ, R. M. (1965) *The conditions of learning*. New York: Holt, Rinehart & Winston.

GILBRETH, F. B. (1911) *Brick laying system*. New York: Clark.

GUILER, W. S. (1926) *Objectives and activities in arithmetic*. Chicago: Rand McNally.

HARROW, A. J. (1972) *A taxonomy of the psychomotor domain*. New York: McKay.

HERBART, J. F. (Translated by H. M. and E. Felkin) (1924) *The science of education*. London: Routledge & Kegan Paul.

HERRICK, W. E. and R. W. TYLER, eds. (1950) *Towards improved curriculum theory*. Chicago: University of Chicago Press (Supplemental Educational Monograph No. 71).

HUGHES, A. G. and E. H. HUGHES (1937) *Learning and teaching*. London: Longmans, Green.

KRATHWOHL, D., B. S. BLOOM and B. MASIA (1964) *Taxonomy of educational objectives. Handbook II: Affective Domain*. New York: McKay.

MAGER, R. F. (1962) *Preparing objectives for programmed instruction*. San Francisco: Fearon. (Republished as *Preparing instructional objectives*. 2nd. edition, 1975).

PINSENT, A. (1941) *The principles of teaching method*. London: Harrap.

POPHAM, W. J., E . W. EISNER, H. J . SULLIVAN and L. L. TYLER (1969) *Instructional Objectives*. Chicago: Rand McNally.

SCHOOLS COUNCIL (1964) *The Certificate of Secondary Education: an introduction to some techniques of examining. Bulletin No. 3*. London: HMSO.

SPENCER, H. (1910) *Education: intellectual, moral and physical*. New York and London: Appleton.

STONES, E. (1972) *Educational objectives and the teaching of educational objectives*. London: Methuen.

TABA, H. (1962) *Curriculum development: theory and practice*. New York: Harcourt, Brace & World.

TAYLOR, F. W. (1912) *Scientific management*. New York: Harper.

TYLER, R. W. (1932) 'The construction of examinations in Botany and Zoology'. *Service Studies in Higher Education*. Ohio State University, Bureau of Educational Research Monographs, No. 15, 49-50.

TYLER, R. W. (1949) *Basic principles of curriculum and instruction*. Chicago: University of Chicago Press.

TYLER, R. W. (1950) *Basic principles of curriculum and instruction: syllabus for Education 360*. Chicago: University of Chicago Press.

WOOD, R. (1968) Objectives in the teaching of mathematics, *Educational Research*, 10, 2, 83-98.

6

EDUCATIONAL RESPONSES TO THE CONCERN FOR PROFICIENCY

WILLIAM NEUMANN

W. Neumann, 'Educational responses to the concern for proficiency', in G. Grant, P. Elbow, T. Ewens, Z. Gamson, W. Kohli, W. Neumann, V. Olesen & D. Riesman, *On Competence: A Critical Analysis of Competence-Based Reforms in Higher Education*, Jossey-Bass, San Francisco, 1979, pp.66–94.

Researchers looking for the antecedents of today's experiments in competence-based education find themselves going in a variety of directions all at the same time. Thus both Ralph Tyler (1975) and David Riesman (see Chapter One) draw upon very broad and diverse historical sources in attempting to explain the rise of these experiments. No doubt the competence-based education movement has a variety of antecedents in earlier movements—including those for efficiency in education, vocational education, progressive education, and instructional technology. Striking parallels can be found between the efficiency movement of the 1920s, for example, and several features of current competence-based programs. Advocates of competence-based education generally contend that it is both cost and time efficient, and the competence-based programs at Florida State University were precipitated directly in response to a mandate from the state legislature for a time-shortened degree.

Similarly, certain basic features of progressive education and the philosophical work of John Dewey are unmistakably present in competence-based education. An obvious emphasis on learning by doing, a recognition that education takes place outside as well as within the classroom, efforts to make educational experiences as realistic as possible, attempts to involve members of the community, and a concept of designing education to prepare for life roles can all be found both in today's competence-based programs and in Dewey's *Democracy and Education* ([1915] 1966).

The effects of enduring American ideals and major crises in American life are also apparent in competence-based programs. In an excellent historical account, Veysey (1965) has shown how the principles of utility and democracy had triumphed in American higher education by the beginning of the twentieth century over elitist and 'nonpractical' concepts of liberal culture and research, such as research for research's sake. The same principles appear today in competence programs. They place high importance on the usefulness of education. Their emphasis is not on what you know but on what you can do. They put into practice Alfred North Whitehead's definition of education as 'the acquisition of the art of the utilization of knowledge' (1949, p. 16). And their democratic orientation is evident in their commitment to equal educational opportunity for diverse groups of 'new students,' in their elimination of traditional grade level distinctions between students, and in their equalization of the stature of all fields of instruction—as evidenced at Alverno College in Milwaukee, where traditional subject-matter distinctions have tended to disappear.

The experiences of two world wars have also left indelible marks on competence-based programs as well as on American education in general. The tendency of these programs to stress mastery learning and to incorporate performance tests as assessment and learning instruments may be seen as the result of wartime education and training experiences. The contingencies of wartime learning did not allow for partial learning. It was important that students learn quickly, but it was absolutely essential that they learn *completely*. And the only truly reliable means for determining whether students had mastered their assignments was the performance test. The final part of every training course had its solo flight, whether it was flying a B-29, repairing a radar unit, or cooking breakfast for five-hundred men.

In addition, ideas from developmental psychology have had a powerful impact. Compared to those, on the one hand, of orthodox Freudian psychoanalytic theory, which saw the child as struggling to cope with internal libidinal demands intensified by family interaction, and, on the other hand, of traditional learning theory, concerned with the details of stimulus and response, the work of Jean Piaget and of Ernest Schachtel emphasized from separate perspectives the desire of young people to learn, to explore, to master their world, to become competent. The semi-Freudian ideas about stages of growth by Erik Erikson, the writings of Jacob W. Getzels, and the research of Robert W. White all contributed to this sense of the development of youngsters as a search for competence—a search for puzzles to be enjoyed and solved and of problems to be confronted and overcome. Perhaps most important, White's concept of competence in his widely quoted essay, 'Motivation Reconsidered: The Concept of Competence' (1959), made many educational psychologists and teachers aware of the concept and its relation to education.

Each of these sources of competence-based education invites further and more detailed investigation than is possible within the scope of this book. But focusing on the key feature of competence-based education as defined in the Prologue—namely, its tendency to develop a curriculum from an analysis of roles to be filled on completion of the educational program—two broadly divergent approaches to curriculum design seem particularly worth examination here as both historical and theoretical bases for current experiments. One is heavily behavioristic or functional, defining roles and building curriculums in terms of highly refined, specifically stated skills or functions. The second approach is much more humanistic, viewing life roles from a holistic perspective and building curriculums that incorporate elements of culture, personality, and citizenship. As Gerald Grant notes in the Prologue, early efforts at competence-based teacher education built on the behavioristic or functional approach; but some of the other programs studied for our project adopt the humanistic orientation, which challenges and moderates the strictly behavioristic approach.

Behavioristic and functional antecedents

The search for antecedents of contemporary educational and training programs that are based on an analysis of specific behavior or functions to be performed within certain roles leads back to the first decades of this century, to the principles of scientific management and job analysis, and to their exposition by one man.

Frederick W. Taylor: Scientific Management and Job Analysis. The general impact of the ideas and work of Frederick W. Taylor on American education has been well documented by Callahan (1962), but he does not discuss in detail the area of Taylor's work which bears directly upon the antecedents of competence-based education. That area involves, specifically, the relationship between two of Taylor's 'four great underlying principles of management': the first principle, the development of a true science for each element of a person's work, that is, job analysis; and the second, the scientific education and development of the worker (Taylor, [1911] 1947, p. 36).

The concept of job analysis, or the systematic analysis and dissection of occupations into a number of component steps and processes, did not begin with Taylor (Uhrbrock, 1922). Personnel and employment officers in industry had for some time used an elementary form of job analysis in their work in hiring and placing employees, but Taylor's development and use of job analysis for time and motion studies in *The Principles of Scientific Management* crystallized interest in job analysis and brought it up to the level of a science. The new science, according to Taylor, was basically a very simple process: 'Each job should be carefully subdivided into its elementary operations, and each of these units should receive the most careful time study' ([1911], 1947, p. 7).

Taylor's development of the concept of job analysis would prove infinitely useful for the selection and placement of workers, but more important were its implications for the training of employees. Still, although Taylor saw the potential value of using job analysis to structure the training program of employees, he did not develop this relationship to any great degree. The extent of his use of job analysis for training consisted of drawing up carefully detailed instruction sheets which specified the steps to be followed in doing a job; these would be given to both workers and management, and management (usually the foreman) would demonstrate the new 'scientific' manner in which the job should be performed. It remained for someone other than Taylor to articulate the relationship between job analysis and education, to show that job analysis would reveal not only the most efficient manner in which to carry out a task but also the most efficient manner in which to train someone to fill a job or role.

The entry of America into the First World War and the resulting demands imposed upon educators to train competent tradesmen and technicians provided the impetus for the further development of Taylor's work in the direction of coordinating job analysis and education. The efforts of the Committee on Classification of Personnel, the Committee on Education and Special Training, and the United States Shipping Board reflect the influence of Taylor's ideas and their extension into educational programs that derive their curriculum from an analysis of roles to be performed and that certify student achievement on the basis of demonstrated performance in a relatively time-free context.

The First World War was the first major mechanized war, and the first to require the inclusion of large numbers of skilled tradesmen and technicians in the military. American entry into the war confronted the War Department with the immediate task of increasing the regular army from 45,000 men to several million. To build an army this size, thousands of skilled tradesmen and specialists were needed; the first army requisition, in March 1918, called for 85,960 skilled tradesmen. It became apparent that the draft alone would not supply the required numbers, and that the army would have to train soldiers in various skills and trades. In addition, it was necessary to balance the needs of the military for skilled tradesmen with the needs of vital war industries. It was in the interest of filling the needs of the latter of these two groups that Charles R. Allen joined the training staff of the United States Shipping Board in 1917.

Charles R. Allen: The Instructor, the Man and the Job. Prior to joining the staff of the shipping board, Allen had spent three years as a special agent for vocational education for the Massachusetts State Board of Education under Commissioner David Snedden, himself a prominent figure in vocational education. Allen was thus well qualified for a task that consisted of turning skilled riveters, boilermakers and other mechanics into instructors for the thousands of inexperienced workers coming into the shipyards. His assignment on the training staff provided Allen with the opportunity to refine and polish his educational ideas, and shortly after the end of the war he published a book, *The Instructor, the Man, and The Job* (1919), which embodied his thought on the education and training of instructors for vocational education. Allen's book, which was to become a classic text, provides unmistakable evidence of Taylor's influence.

'The first operation' in the instructional process, Allen tells the future teachers, is the determination of what is to be taught, and that is based upon the results of a trade analysis:

> Analyzing the trade simply means listing out all the things that the learner must be taught if he is to be taught the complete trade. If the trade is that of a carpenter, the instructor notes down all the different jobs that a carpenter has to do. If it is plumbing, or bookbinding, or machine shop work, the same listing of jobs must be carried out. If, in addition to the jobs themselves, there are certain special words (technical terms) whose use he must know, or special tools whose names he must be able to remember, or constructions or computations which he must be able to make, or special safety precautions that he must take, these must also be listed completely. The point in each case is to make a complete list of all that the man must know when the instructor has trained him for the complete trade [Allen, 1919, p. 43].

Allen placed great emphasis upon the importance of the trade or job analysis as the foundation upon which the training program was to be structured: 'Getting out a correct and complete analysis and then classifying correctly is the key to the whole problem of getting an effective order of instruction. If the analysis is not complete, the instructor will omit things the man should be taught if he is to be completely trained' (p. 211). Using the trade analysis as a guide for identifying component skills to be learned, Allen proposed that a number of learning units or 'blocks' could be identified which would each represent the specified skills to be developed and which could be arranged according to difficulty, beginning with the simplest and progressing to the most complex.

The learning blocks were to be so defined and organized as to permit a student to enter at whatever level he was prepared for, and the time factor was to be de-emphasized, thus providing for a high degree of individualization: 'Not only should the training work be so organized that a man can be admitted to an instructional group at any time but the organization should be such that each man can progress through the course of training required for his particular case as rapidly as his individual capabilities will admit. A 'bright' man should not be held back by men who are less 'bright' nor should a 'slow' man be speeded up in an attempt to make him keep up with the fast man. Each man should be allowed to travel at his own best gait' (p. 228).

The measure for determining progress from block to block was to be complete mastery of the subject or skill in each block. Allen rejected the more traditional method—that of evaluating the amount a person has learned in a fixed period of time and then advancing him—as inappropriate for vocational education: 'The difficulty with this organization so far as trade training is concerned is that, if a man is to be taught to do a job, he must be entirely taught, so that he can do that job, not half taught, or two-thirds taught, but entirely taught. If the fixed time interval is used, a slow man can be thoroughly taught fewer jobs than a fast man, but he must be thoroughly taught when he is taught' (p. 228). As to the means for determining complete mastery, Allen's first choice was the performance test, that is, to put the instructed man up against the actual job which he has been taught to perform successfully. In those instances where a performance test was not available, a student could be evaluated by means of recitation, discussion with the instructor, or a written exam.

The book was an immediate success. In its introduction, Charles A. Prosser, the executive director of the Federal Board for Vocational Education, praised it as 'the most important contribution yet made to industrial and trade training. It deals with the most vital of our problems—the proper selection and training of competent instructors' (Allen, 1919, p. v). So impressed was Prosser that after the war ended he invited Allen to join his staff. Allen's ideas now had national exposure, and he embarked upon a long and active career in vocational and industrial education.

While Allen was busy training instructors in the shipyards, however, two committees of the War Department were also activity involved in developing innovative training techniques. The Committee on Classification of Personnel and the Committee on Education and Special Training had different but related tasks, and it was the success of their joint efforts which was largely responsible for the remarkable effectiveness of the War Department's training program.

The Committee on Classification of Personnel. This committee was established by the War Department initially to provide for the placement of skilled personnel within the army. In addition, the Committee on Education and Special Training needed accurate definitions of various army jobs and detailed information about the qualifications required of each soldier-tradesman to send to all of its 57 training sites. The Committee on Classification responded by using job analysis to assemble the *Trade Specifications and Occupational Index*, which provided precise definitions of the duties and specifications for each of the 714 civilian trades and occupations the army used, and also specified the trade needs for each branch of the army. This information was shared with the Committee on Education and distributed to all of the training sites.

Although the *Trade Specifications and Occupational Index* aided in the classification of personnel, the army soon found that its methods of selection—which generally consisted of a questionnaire and an interview—were not sufficiently accurate. For a variety of reasons, including dishonesty among recruits and variance among interviewers, large numbers of men were being inappropriately and inefficiently selected for trade and occupational training.

In an attempt to solve this problem, the Committee on Classification formed the Army Trade Test Division. The work of this division and its final product, the trade test, is reported in detail in a book written by a member of the division, James Crosby Chapman, and titled *Trade Tests: The Scientific Measurement of Trade Proficiency* (1921). Taking a cue from practices in American industry and the British army, the Army Trade Test Division turned to the performance test as the instrument for evaluating both applicants and students or trainees. Chapman and his associates developed performance tests for each of the many trades required by the military. Many of these tests are contained in the book along with a chapter on occupational analysis and a chapter explaining how the trade tests can be adapted for training purposes.

Chapman's training plan is similar to Allen's, and again Taylor's influence is apparent. Using the *Trade Specifications and Occupational Index,* Chapman would break each trade into a number of component jobs. These jobs would be carefully analyzed, a precise instruction sheet would be drawn up for each component task, and these instruction sheets would then be given to the student. The jobs would be arranged according to difficulty, and the performance test would be used to evaluate student progress. One interesting difference between Chapman's and Allen's work is that Chapman would accept a percentage of mastery of performance at each job as a criterion of assessment and progress: 'If the learner can answer a predetermined proportion of the questions, if the product that he has turned out, when rated by standard methods, scores a reasonable percentage of the maximum, then, and not until then, will this particular stage in the process of learning be passed. The accomplishment of the job, with a reasonable degree of success, success being defined in purely objective terms, is the signal for advancement to the operation next in sequence' (1921, p. 407).

While it is known that the *Trade Specifications and Occupational Index* was widely distributed and used among the various training institutions under the supervision of the Committee of Education and Special Training, there is no information available which indicates the extent to which the division's or Chapman's thoughts on the design of training programs influenced these institutions.

The Committee on Education and Special Training. Created by the secretary of the War Department in February of 1918, this committee had the primary responsibility for meeting the army's needs for skilled tradesmen; and, not surprisingly, the military turned to industry to find its educational direction. Channing R. Dooley, the manager of the educational department of the Westinghouse Electric and Manufacturing Company of Philadelphia, was appointed educational director for the committee.

Dooley's task was formidable. In addition to almost staggering demands in terms of numbers and time constraints, Dooley had to coordinate training programs at 157 different institutions that were engaged in training soldiers for 67 different trades. Out of practical necessity, he organized a rather loose, decentralized administrative structure, which resulted in a good deal of autonomy and diversity among the training programs of the participating institutions. The results of the committee's work were indeed remarkable; within the first six months of its existence, the committee trained and delivered to the army over 100,000 men, and an additional 40,000 men were ready by the time the armistice was signed (Dooley, 1919).

Although the committee did issue some general guidelines for the design of the training program, its mandate to the participating institutions was to adopt those methods of instruction which would best train the men in the shortest time (Dooley, 1919). Consequently, there was considerable diversity in organizational and instructional techniques among the different training programs. Significantly, however, in the final report to C. R. Mann, the chairman of the advisory board for the committee, Dooley describes one system as being superior to all the others:

> Best results were obtained in schools that had the courses organized into a series of jobs. In these schools the job was the unit as opposed to a period of time. A man was given a job to do and not merely assigned to a job for a scheduled period of time. In such courses as that of auto mechanics the entire work was divided into the major units of engine work, chassis work, carburetor work and electrical work which included ignition, lighting and self-starter. Further subdividing arranged the whole course into a series of what might be termed minor units. The men progressed as they developed ability in performing each successive job or unit. This method of instruction permitted a careful grouping of the men at the beginning of the course on the basis of their previous experience and capacity to progress in the course. The capable men were thus enabled to advance as rapidly as they grasped the instruction and were not retarded by the weaker men. Men with previous experience and native ability could complete the entire course in the two-month period while others found it all they could do to develop a working knowledge of the carburetor, the engine, or the chassis, or at most a combination of a few of these units. Individual instruction not only is advisable but becomes a necessary part of the method. Instructions in the form of job sheets were given to the men. These assigned a specific job and contained questions which invited definite study of important features. Performance tests as opposed to written tests were advocated, as the basis upon which to rate the men [Dooley, 1919, p. 11].

The success of these training programs astonished everyone, including their designers: 'Farmers totally ignorant of the tinsmith trade produced work of commercial quality including the making of their own patterns and involving principles of descriptive geometry; bank clerks did excellent work in pattern making; real estate agents acquired great skill and enthusiasm in electrical wiring; garment workers who had never seen a piece of hot iron became good general blacksmiths. Complete failures were so rare as to be recorded negligible' (Dooley, 1919, p. 12). Clearly these noteworthy results can be attributed in part to the high degree of motivation exhibited by the students, who were, after all, preparing to go to war; and also, in part, to the effects of the strict military discipline they were living under. But the design of the educational and training programs—specifically, the key elements of individualization, evaluation by performance, promotion based on mastery, the modularization and systematic program structure, the use of self-instruction manuals or 'job sheets,' the emphasis on exit requirements or outcomes, and the derivation of a curriculum closely coordinated to the results of a role analysis—all these contributed to the success of the programs.

The Lessons of Wartime Training. The accomplishments of the wartime training programs and their special features did not go unnoticed, particularly by the members of the committees responsible for their design. As was true of Allen and Chapman, two members of the Committee on Classification, Herbert

Toops and Arthur Kornhauser, published work drawn from their wartime experiences.

An associate of Chapman's in the Army Trade Test Division, Toops shared Chapman's interest in the adaptation of trade tests for use in education, and his book *Trade Tests in Education* (1921) came out the same year as Chapman's. Toops presents the case for the adoption of trade or performance tests in vocational education in words which could just as easily have come from some proposals for competence-based education:

> Only until very recently has trade skill and knowledge been measured in more refined terms than subjective personal judgements of 'skilled man' and 'helper,' 'successful' and 'unsuccessful,' 'competent' and 'incompetent.' Army trade tests solved this problem for the army; adaptations of the method may solve the problem for our vocational schools. Graduates of our vocational schools are at present of equal merit, so far as measure of their merit goes, for they all receive diplomas. Industry wants a more accurate measure of their hiring worth; and the school desires to recognize the varying merit of its product. Unless the prospective employer can successfully rate the human product of the vocational school, he is at a loss to know in placing a graduate of a vocational school in industry whether he should adopt a course different from that followed in the case of any other applicant for the job. The average employer is skeptical of the value of the 'book learned' tradesman. His skepticism, we must believe, is not directed toward vocational school graduates as against particular exceptional individuals in the past who have happened to fail when given the test of industry, the test of doing the job itself [Toops, 1921, p. 1].

Having underscored the value of performance tests, Toops goes on to explain just how a trade test can be constructed and administered by educators. But he then reverses himself somewhat and claims that, while the performance test is good, it is not as efficient as a 'multiple-choice trade test,' which is much more 'objective' and timesaving. Written as a practical, and not theoretical, guide to the adaptation of army trade tests to education, the book contains many examples of how trade skills can be standardized and evaluated through written multiple-choice exams.

Kornhauser had also served on the Committee on Classification of Personnel and, like Chapman and Toops, was convinced of the value of trade tests—he called them 'performance job tests'— and other unique features of the training program developed during the war. Kornhauser's 'Plan of Apprentice Training' (1922), which appeared in the *Journal of Personnel Research* and had been given a trial run by the Scott Company, was an effort at making apprentice training more effective and efficient through the army's training methods.

Kornhauser systematically arranged the whole of apprentice training into a series of 'natural divisions' or jobs. Bearing in mind the two principles of individualization and of stating specific objectives, he operationalized his plan with the following features:

1. The progress of an apprentice is determined by the ability he shows in his work. There is no set time for any part of the course.
2. Proficiency as a basis for advancement is measured by job tests and oral examinations; also by ratings given foremen and supervisors.
3. Student manuals consisting of specified job tests and trade questions serve not simply as a measure of progress. They are at the same time goal, stimulus, and means of instruction.

4 The presence of known specifications of accomplishment places a definite goal before instructor and students. This serves both to stimulate the apprentices and to give point and direction to the training, thus markedly shortening the time required in acquiring skill [Kornhauser, 1922, p. 217].

The plan of apprentice training developed by Kornhauser does contain the essential features of the military program, and its subsequent widespread adoption by industry demonstrates its transition from wartime training to peacetime industrial education.

In another attempt to spread the concepts of the military training program to the greater educational community, Charles R. Mann, who had been chairman of the advisory board for the Committee on Education and Special Training and who was later to become president of the American Council on Education, wrote an article called 'The Technique of Army Training' (1922) for *School and Society* in which he summarized the 'best' practices of the military. In his article Mann emphasized the use of job analysis for establishing the 'special objectives' of the educational program, the modularization of the subjects, the establishment of specifications or acceptable standards of accomplishment, and the use of objective tests of proficiency. The ideas that came from the First World War training programs were eventually to have a great influence on practices in vocational and industrial education, but it was their impact on the field of curriculum studies that was to bring them into the limelight of educational practice.

The Science of Curriculum-Making. While military, industrial, and business training programs were rapidly becoming 'scientific,' the study and practice of education was also experiencing the effect of the scientific revolution. This was especially apparent in the emergence and growth of the field of curriculum studies in the 1920s.

Franklin Bobbitt, identified by Callahan as one of the most influential subscribers to Taylor's ideas, wrote the first full-length book devoted entirely to the curriculum. Among the wide range of issues covered by Bobbitt's book, *The Curriculum* (1918), there appeared a section on 'Scientific Method in Curriculum-Making' in which he presented the case for the study of the curriculum: 'The technique of curriculum-making along scientific lines has been but little developed. The controlling purposes of education have not been sufficiently particularized. We have aimed at a vague culture, an ill-defined discipline, a nebulous harmonious development of the individual, an indefinite moral character-building, an unparticularized social efficiency, or, often enough nothing more than escape from a life of work. Often there are no controlling purposes: the momentum of the educational machine keeps it running. So long as objectives are but vague guesses, or not even that, there can be no demand for anything but vague guesses as to means and procedure. But the era of contentment with large, undefined purposes is rapidly passing. An age of science is demanding exactness and particularity' (1918, p. 41).

The scientific technique Bobbitt proposed begins with an *activity analysis*, which is simply another term for job analysis, only in this case the 'job' to be analyzed is life: 'The central theory is simple. Human life, however varied, consists in the performance of specific activities. Education that prepares for life is one that prepares definitely and adequately for these specific activities. However numerous and diverse they may be for any social class, they can be discovered. This requires only that one go out into the world of affairs and discover the particulars of which these affairs consist. These will show the abilities, attitudes, habits, appreciations, and forms of knowledge that men need, these will be the objectives of the curriculum. They will be numerous, definite, and particularized. The curriculum will then be that series of experiences which children and youth must have by way of attaining those objectives' (p. 42).

Bobbitt's use of activity analysis to derive curricular objectives required the articulation of those objectives in terms of real-life activities. These objectives stated as particular activities were the forerunners of what are today referred to as behavioral objectives (Eisner, 1967). Indeed, Ralph Tyler, who has been called 'the father of behavioral objectives,' was a student of Bobbitt's at the University of Chicago.

It was one of Bobbitt's contemporaries, W. W. Charters, who elaborated upon Bobbitt's work on curriculum-making and widely disseminated it through numerous publications. Although, in essence, they all involved the same procedure as a job analysis, Charters advanced the use of the activity analysis (1922), the functional analysis (1924a), the difficulty analysis (1926), the duty analysis (1926), the trait analysis (1924b), and the information analysis (1926), all for the same purpose: curriculum construction. But the development of the concept of the trait analysis is probably Charters' unique contribution to the process of analysis and curriculum construction: 'A trait analysis should always accompany an activity analysis. In building a curriculum it is not sufficient to find out what people have to do and give them instructions in the performance of the duties. Much depends upon traits of personality, such as accuracy, neatness, courtesy, and firmness. As a matter of fact college-trained teachers who fail in a vocation seldom make a failure because of lack of information or technical skill. The causes of failure are weakness of personality. Consequently, a teacher training institution must pay direct, explicit, and persistent attention to the development of the proper traits of personality. What has to be done is not so important as how it is done; and the standards of performance are set by the traits of personality and the character of the worker' (1924a, p. 218).

The trait analysis was conducted simply by interviewing experts and qualified judges in the field, and finding their consensus. It became a permanent feature of Charters' method of curriculum construction, this construction consisting of four steps: Steps one and two, which were carried out concurrently, were the functional analysis and the trait analysis; step three was the use of the results of these analyses to determine the basic subject matter; and step four was the arrangement of the material in teaching order with special regard to the lessons of psychology.

The 1920s were the heyday of job analysis and curriculum construction, and W. W. Charters was undeniably its leading figure and most prolific proponent. Although a major part of the work continued to be in industrial-trade and vocational areas, important efforts were made to adapt the procedure for professional education and more traditional academic subjects. As a professor of education at the Carnegie Institute of Technology, Charters helped guide the work of two Carnegie researchers, Strong and Uhrbrock, who conducted a study of the use of job analysis in designing a curriculum for the training of executives for the printing industry. Their study, which appeared as *Job Analysis and the Curriculum* (1923), was important because it made an early attempt to adapt job analysis to a profession, served as an early model for later studies, and included an excellent bibliography on job analysis.

An article on the use of job analysis in vocational curriculum-making appeared in the yearbook of the National Society for the Study of Education in 1924 (Kitson, 1924), and in that same year, a special issue of *The Journal of Educational Research* was devoted solely to articles on 'Educational Objectives for Colleges and Schools of Education' and 'Job Analysis and the Training of Teachers.' Both Bobbitt and Charters were among the contributors, and the following year Charters began the famous Commonwealth Teacher Training Study. This study, published in 1928, was probably the most thorough job analysis in history. Charters' entire analytic scheme was employed, and more than two million activities and points of information regarding teaching were amassed. After being reviewed and evaluated by juries of teachers, administrators, and professors, these activities were then reduced to about a thousand. This list became known as 'The 1001 Activities of American Teachers' and was used by many teacher training institutions in curriculum development (Tyler, 1975).

The extent to which job or activity analysis had been accepted by educators as a means for curriculum-making may be judged by the regard paid it in the composite statement of the committee on curriculum-making which appeared in 1926 in the yearbook of the National Society for the Study of Education. In Section III, 'Curriculum-Making and Scientific Study of Society,' the committee wrote: 'Curriculum-making will increasingly make use of scientific procedure. The materials of instruction (individual and group activities of children, reading, open forum discussions, excursions, what not) will be chosen in the light of the analysis and appraisal of the activities in which people, old and young, most universally and permanently engage. This is just as necessary in the case of the finer types of appreciation as in the case of the most highly specialized skills. Not only will the materials of instruction emerge from a scientific study of society, but, in addition, the discovery of the sound purposes of education will be furthered by such study' (in Rugg, 1926, p. 15).

Later that year the Teachers College Contributions to Education Series published a monograph by Walter Jones, *Job Analysis and Curriculum Construction in the Metal Trade Industry* (1926). In this book Jones proposed the use of the 'project method' to build a curriculum of projects based upon a job analysis of metal tradesmen's work. While there was nothing very new in its design, it did represent an attempt to wed two of the 'hottest' educational techniques of the day, job analysis and the project method.

Interest in job analysis and curriculum construction began to decline in the 1930s as the influence of progressive education became more widespread and reached college curriculum-makers. The major features of the First World War training programs had by the 1930s become firmly established principles of vocational and industrial training, but times were difficult and industries were laying off employees, not training them. There was, however, at least one redoubt in which these training concepts flourished.

The Civilian Conservation Corps and Unit Instruction. Along with the goal of providing immediate employment for thousands of the unemployed, the Civilian Conservation Corps (CCC) also had as a primary objective the development of skills in their enrollees which would make them employable on the open market. To this end a program of 'unit instruction' was instituted in several camps. Unit instruction was considered an improvement on military methods (Rice, 1940), but descriptions of such instruction reveal few, if any, differences between it and the military training programs it was drawn from. (It is interesting to note that C. R. Mann once again appears in an advisory role, this time as a member of a national advisory committee supervising the educational programs of the CCC. His influence may be detected in the operation of unit instruction.)

Toward the end of the 1930s, when it became clear that the United States would be drawn into a war for which it wasn't prepared, there was a resurgence of interest in the First World War programs. The National Industrial Conference Board published a booklet in 1940 called *Quick-Training Procedures* which summarized the report of Dooley's committee, and Dooley—who had been appointed director of the Training Within Industry branch of the War Manpower Commission—wrote the introduction for an industrial training manual, *How to Train Workers for War Industries: A Manual of Tested Training Procedures* (1942). Sponsored by the American Management Association, this manual was a compilation of articles written for business executives by business executives describing various quick-training programs and practices.

The new wartime training programs operationalized by industry and the military bore remarkable similarity to the training programs of the First World War. Charles Prosser tells the story of how a representative of the War Department, General Frank McSherry, in 1939 found the plans for the 1918 training programs, became very enthusiastic about them, and urged the War Department to adopt them again (Todd, 1945).

Lessons from Wartime Training: Another War. The considerable demands by the military for trained specialists in 1918 seem almost paltry when compared to the requisitions of the Second World War. Education and training programs were carried out on a magnitude unsurpassed in history. More than ten million men and women became 'experts' in a vast range of activities, many of which were highly technical. That education and especially higher education would be affected by these training programs was to be expected. More than six hundred colleges and universities, along with thousands of professors and other educators, participated to some degree in military training.

. To ensure that what was of value in these programs would not be lost to American educators after the war ended, the American Council on Education, with funding from the Carnegie Corporation and the General Education Board, appointed a commission under the leadership of Alonzo P. Grace to conduct a two-year study of the implications of military experiences for civilian education. Their general report, *Educational Lessons from Wartime Training* proclaimed no 'educational atom bombs,' but it did provide solid evidence for the validity and effectiveness of several educational practices: 'Out of the experience of the armed services in the training of twelve million men it is clear that new concepts have emerged to take their places besides our presently held concepts in general education about the importance of the objective, the need for curricular revision in the light of social change and scientific advancement, the desirability of adjusting the curriculum to the individual, the relatively greater effectiveness of learning experiences that involve doing rather than only listening or reading, the importance of instructors' guides and of suitable materials and aids in the implementation of a particular course or program, and the power of motivation and learner purpose in attaining objectives' (Grace, 1948, p. 99).

Increasingly one could find certain distinctive features of the trade training program appearing in educational programs for more professional military roles, such as those for engineers, medics, and pilots. The literacy program that the military designed was individualized and modularized, had very clear objectives, and was time-free. Advancement depended upon mastery of material as demonstrated in performance tests. The one feature which the commission stressed as having the most important implications for civilian education was that of designating specific goals or objectives for courses and instruction. The objectives were the foundation upon which to design the course of training and later became the basis for evaluating student progress.

The test for evaluating the degree to which objectives were reached was most often a practical or performance test, and the commission recommended its more general utilization by educators: 'It is important to note that the armed services used actual tests of performance of the required skills whenever practicable. The best practical test of a radio mechanic is to place before him several devices that he will be expected to keep in repair, each of which has a defect which he is required to locate and correct. Such tests were used in the final examinations of radio operators and mechanics. Similar tests were used in many other technical courses, wherever they could be devised, to supplement pencil-and-paper achievement tests. Possibly a similar type of practical testing could be used far more widely in liberal and professional education than is now the case' (Grace, 1948, p. 29).

Significantly, the members of the commission—themselves all civilian educators—drew special attention to the basic differences between military training and civilian general education. Although granting that civilian educators are faced with more complicated problems of teaching emphasis and that their goals are necessarily much broader than those of the armed services, the commission members felt that the efficiency and effectiveness of military training, often in highly complex technical activities, constituted 'an open challenge to civilian educators to think about the objectives of American schools and colleges' (Grace, 1948, p. 100).

Training Research and Education. There was little governmental or military interest, and certainly no money, for the study of training programs after the First World War, but the situation was just the opposite following the Second World War. Military interest in training research not only continued unabated but, in fact, increased. During the 1950s and 1960s the Department of Defense sponsored hundreds of psychologists to conduct training research. In 1957, for example, it was reported that the military employed a minimum of 729 psychologists. Members of the American Psychological Association (APA) established a division of military psychology, and an enormous body of psychological literature on learning and training was generated.

Glaser (1962), who conducted some of this research and has written widely on the implications of training research for education, reports that one of the primary concerns of these psychologists has been with the development of techniques of task analysis as a means of behaviorally specifying performance objectives. Robert Gagne (1965b), also active in training research and a former president of the division of military psychology of the APA, feels that this emphasis on behavioral objectives is critically important in the design of effective instruction. He himself looks on task analysis as the most useful technique for arriving at statements of training objectives in behavioral terms. Both Gagne and Glaser readily admit that their use of task analysis as a principle in training programs was based upon the earlier work of another training psychologist, Robert Miller. Glaser, for example, writes: 'A primary example of the analysis of instructional goals is the notion of task analysis developed in the military context by Miller. Such procedures should provide information to assist the designer of a course of instruction in making design decisions. Furthermore, factual data of this kind can combat prejudices and ritualistic practices about what is relevant or nonrelevant—to criterion performance' (1965a, p. 155).

Miller (1962), in his own work, uses the term 'task' interchangeably with the term 'job' and talks about 'parts' of tasks, 'functions' of tasks, and task 'activities.' Task analysis is, quite simply, an attempt to identify the variety of tasks in a job. Each task in turn can be divided into several subtasks. The subtasks are then arranged in a task sequence, which is specially arranged to facilitate transfer of learning from task to task. The outcomes of task analyses are referred to as 'task descriptions' and these serve as instructional goals.

Gagne (1962a) considers the use of task analysis for the design of training programs as the most effective means of instructing individuals to develop motor skills, sequence skills (that is, learning to do things in their proper order), and such higher order skills as troubleshooting or problem solving. In his presidential address delivered at the annual meeting of the division of military psychology, Gagne attests to the superiority of the technique of task analysis over other learning principles: 'If I were faced with the problem of improving training, I should not look for much help from the well-known learning principles like reinforcement, distribution of practice, response familiarity, and so on. I should look instead at the technique of task analysis, and at the transfer, and the sequencing of subtask learning to find those ideas of greatest usefulness in the design of effective training' (1962a, p. 90).

It is no surprise that both the military training programs and recent developments in experimental psychology have exerted a strong influence on the design of many current educational programs, and especially competence-based education. But, significantly, not all educators adhere to the behavioristic-functionalistic approach. There are educators, including some involved in the design of competence-based education programs, who reject this atomized, highly particularized view of education. They would call these programs 'training' and not education. The distinction being made here between training and education rests upon the degree of specificity with which program objectives are described. Glaser puts it well: 'If the end products of the learning process can be rather precisely specified, as, for example, learning to use a slide rule, then it can be said that the student is being trained to use a slide rule. On the other hand, if the behavioral end-products are complex and present knowledge of the behavior makes them difficult to specify, then the individual is educated by providing a foundation of behavior which represents approximations to the behavior it is wished that the student will eventually perform, for example, being a creative scientist' (1962, p. 4).

Within Glaser's statement lies the crux of the contrast between behavioristic and humanistic perspectives on competence-based education. Although they construct their curriculums with the intention of preparing students for certain roles, and fairly specific ones at that, some competence-based education programs profiled in our study, such as those at the College for Human Services and the teacher preparatory program at Syracuse University, take a much broader, less particular, approach in the design of their curricular experiences.

The humanistic challenge

The often dramatic successes of the behavioristic and functional approach to education in part explains its present ascendancy in American educational practice, yet some competence-based programs, through their broader conception of roles, demonstrate the persistent humanistic influence that challenges and moderates some of the excesses of the more prominent orientation.

John Dewey. Perhaps the most articulate challenge to the strictly behavioristic and functional approach to education can be found in the work of John Dewey. In *Democracy and Education* (1915) Dewey forcefully rejects the atomistic, task-specific curriculum of some educational programs:

> We must avoid not only limitation of conception of vocation to the occupations where immediately tangible commodities are produced, but also the notion that vocations are distributed in an exclusive way, one and only one to each person. Such restricted specialism is impossible; nothing could be more absurd than to try to educate individuals with an eye to only one line of activity. In the first place, each individual has of necessity a variety of callings, in each of which he should be intelligently effective; and in the second place any one occupation loses its meaning and becomes a routine keeping busy at something in the degree in which it is isolated from other interests. No one is just an artist and nothing else, and insofar as one approximates that condition, he is so much the less developed human being; he is a kind of monstrosity [Dewey (1915), 1966, p. 307].

Like Bobbitt, Dewey claims that the dominant role for which education must prepare one is life. Life involves not one role, but a multitude of roles. An occupation is just one role; other roles include being a family member, a friend, a member of some political group, or a colleague. There is a natural tendency to think of a person in terms of his occupational role because it is this role which distinguishes a person, but this should not cause one to ignore or deny the other roles a person must fill. Clearly where Bobbitt's perspective on life is static (life as a number of identifiable activities), Dewey's is vibrant, growing. According to Dewey, the dominant vocation of all human beings at all times is living, that is, intellectual and moral growth.

Dewey dismisses the narrow task-specific curriculum as injurious to both the individual and society. A lack of breadth in educational experiences inhibits individual development and restricts possibilities for growth, thus making it very difficult for the individual to find 'his own right job.' Equally damning of the job-specific curriculum is Dewey's sense that it is essentially undemocratic. It deprives students of the social meaning of the careers for which they are preparing and doesn't equip them to be critical or independent of the occupational roles thrust upon them: 'To predetermine some future occupation for which education is to be a strict preparation is to injure the possibilities of present development and thereby to reduce the adequacy of preparation for a future right employment. To repeat—the principle we have had occasion to appeal to so often, such training may develop a machine-like skill in routine lines (it is far from being sure to do so, since it may develop distaste, aversion, and carelessness), but it will be at the expense of those qualities of alert observation and coherent and ingenious planning which makes an occupation intellectually rewarding. In an autocratically managed society, it is often a conscious object to prevent the development of freedom and responsibility; a few do the planning and ordering, the others follow directions and are deliberately confined to narrow and prescribed channels of endeavor' (Dewey [1915], 1966, p. 310).

The inclination towards specialization in educational programs that were vocationally oriented was, Dewey thought, natural and to be expected, but it was up to educators to restrain it, 'so that the scientific inquirer shall not be merely the scientist, the teacher merely the pedagogue, the clergyman merely one who wears the cloth, and so on' (p. 308). The ideal curriculum designed by Dewey to prepare students for a specific occupation, which of course is part of one's vocation, would be broad indeed: 'An education which acknowledges the full intellectual and social meaning of a vocation would include instruction in the historic background of present conditions; training in science to give intelligence and initiative in dealing with material and agencies of production; and study of economics, civics, and politics, to bring the future worker into touch with the problems of the day and the various methods proposed for its improvement. Above all, it would train power of readaptation to changing conditions so that future workers would not become blindly subject to a fate imposed upon them' (p. 319).

The powerful logic of Dewey's pronouncements demands a broader conceptualization of programs that claim to educate, not simply to train students.

Stephens College. This broader perspective can be found in the later work of the founding fathers of task analysis and curriculum construction, Franklin Bobbitt and W. W. Charters. In the late 1930s Stephens College in Missouri asked W. W. Charters to develop a curriculum specially designed to meet the needs of women. Charters responded with his typically ambitious use of the task analysis and the difficulty analysis, but from a slightly broader perspective than he had taken in the past. He asked more than three hundred women, some married and some unmarried, some employed outside the home and some not, but all college graduates, to keep diaries for several weeks in which they were to record their activities, their problems, and their thoughts. He then analyzed the diaries, and from a list of over seventy-five hundred items he abstracted seven broad areas common to all women's activities and needs. The seven areas, which served as the foundation for the curriculum at Stephens, included: communications, appreciation of the beautiful, social adjustment, physical health, mental health, consumers' problems, and philosophy of living. To this list the faculty at Stephens added an eighth area, 'a knowledge of science in terms of life needs.' Despite the detailed list of activities and intensive analysis, the curriculum developed at Stephens was intentionally broad. B. Lamar Johnson, dean of instruction at Stephens, noted that 'the curriculum is conceived broadly, for it includes the sum total of the student's college experience, in the classroom and in the library, in the dormitory and on the athletic field, in the laboratory and in the sorority room' (1939, p. 128).

The curriculum developed at Stephens College demonstrates a blend of the behavioristic and functional and the humanistic schools of thought. A similar blending is also apparent in the curriculum developed at Rollins College in Florida during the 1930s.

Rollins College. In January 1931, Hamilton Holt, the ambitious and sometimes erratic president of Rollins College, invited John Dewey and Goodwin Watson of Columbia University's Teachers College, along with several other prominent progressive educators, to a highly publicized conference on curriculum for the College of Liberal Arts. Participants in the conference were strongly influenced by a two-part article by Watson on 'What Should College Students Learn?' that had appeared in the November and December 1930 issues of *Progressive Education* (Butts, 1939). Watson charged that increasing public demands for equality of educational opportunity called for a new and more effective college curriculum. He proposed an 'ideal but practicable' curriculum that would eliminate traditional academic subject divisions and replace them with several broadly conceived departments which would represent more appropriately actual life experiences. The seven departments, which were remarkably similar to the seven areas that Charters identified for Stephens College, included: health, homemaking, purchasing and consumer activities, leisure-time experiences, vocation, citizenship, and philosophy of life.

Students would not take courses within these departments, but instead would engage in various 'project enterprises' of which Watson said: 'Considered as life situations in all their varied ramifications, they will help the student to become more competent in the affairs of modern social life' (1930, p. 400). While projects would occupy the activities of students in all seven departments, special attention was drawn to the projects in the department of citizenship, which called for an activism on the part of students not unlike that required by the College for Human Services: 'Projects in this department will be highly realistic; they will take the student out of the classroom into the life of his community, county, state, and nation. If he discovers that the methods of providing playgrounds, caring for the insane, or censoring moving-pictures is highly inadequate, according to the best standards of judgment his study reveals, it should be his business, not merely to write a term paper about it, but to participate in the actual work of improving the social structure where it is at fault. This realistic approach to the problems of the world as it is will break down prejudices and open many new fields for study' (p. 401) .

Although Watson claimed that one of the virtues of his new curriculum was that it would individualize education and provide interested students with the opportunity to specialize, he was opposed to an emphasis on specific vocational training. In addition, he would ensure against overspecialization by requiring that students gain a certain minimum of experience in each of the seven departments.

Reports of the conference were written by John Palmer Gavitt (1931a, 1931b) and Goodwin Watson (1931), but it was not until some months after the conference that President Holt announced that Rollins would have a new curriculum: 'Under the new plan, which is a departure from standardized college practices, the student body will be divided into an Upper and a Lower Division. New methods of evaluating a student's work have been evolved, with the consequent abandonment of the present system of credits and grades, thus permitting the elimination of the time element in completing a college course and placing the work of the student on an "accomplishment basis"' (McHale, 1932, p. 83).

At Rollins College, the responsibility for taking the initiative in education was placed upon the shoulders of the student: subject matter was still organized into courses, but courses were not required. One gained certification of attainment not through attendance, but through demonstration of certain definite levels of accomplishment: 'Furthermore the student is no longer held back by the lockstep system of mass education. He can go ahead as far and as fast as his ability will allow' (Holt, 1930a, p. 372). A document submitted by Rollins College for inclusion in the yearbook of the National Society for the Study of Education describes the essential features of the new Rollins curriculum:

> But in place of the system of evaluating a degree in terms of credit hours, grades, and terms of residence, there has been substituted one in which the

> student who desires admission to the upper division of the college will be required to demonstrate to the satisfaction of a board of admissions that he has met the requirements for such admission; and, further, the upper division student who is a candidate for a degree will in like manner have to demonstrate to a special committee that the work which he has accomplished is of such character and of sufficient amount to warrant his recommendation for the degree. The committees are given great discretion as to the methods they may follow in evaluating the work of any given student and it is quite probable that the methods employed will vary with the student. The plan provides for no required courses. Instead of this it prescribes certain definite accomplishments and leaves the student a choice of methods by which he may fulfil the requirements. The college will offer, and probably the majority of the students will take, course in which they will acquire the materials necessary for the satisfaction of the requirement; but there is nothing to prevent a student satisfying the requirements by purely independent work or by work carried on under the informal guidance of a member of the faculty. The conference plan of instruction will be retained [McHale, 1932, p. 84].

The objective of the new curriculum was simply stated as the 'hope' that the student would be 'better prepared to meet conditions prevailing outside the college.'

The new curriculum at Rollins included the following features, many of which are characteristic of more behavioristic attempts at competence-based education: individualization, modularization as reflected by the projects, establishment of objectives referred to as 'definite accomplishments,' mastery learning, evaluation based upon student demonstration of accomplishment, the elimination of required courses, efforts to make educational experiences realistic and practical, and the elimination or de-emphasis of time as an evaluative factor in education. While the Rollins Plan shared several features of behavioristic competence-based education programs, it differed in one crucial aspect; it was based upon a very broad curricular objective, namely, to prepare students to meet conditions outside the college.

Final observations

Competence-based programs tend to be eclectic, incorporating various characteristics of different types of educational programs and practices. In many of them, such relatively new concepts as programmed instruction, behavioral objectives, and mastery learning coexist comfortably with age-old educational concepts like individualization, self-paced learning, and learning through practical experience. But despite this eclecticism of practice, these programs tend toward one or the other of two major theoretical orientations or philosophical approaches: the behavioristic and functional view on the one hand or the humanistic and holistic on the other. Their choice of perspective affects all facets of their operation, including instructional practice and assessment techniques. As the case studies later in this volume illustrate, some programs can blend facets of both orientations, rather than espousing only one or the other. The aim of this chapter, however, has not been to baptize one orientation or the other, but to make the nature of these choices more explicit by uncovering their histories.

7

COMPETENCE-BASED EDUCATION AND TRAINING: BACKGROUND AND ORIGINS

ERIC TUXWORTH

E. Tuxworth, 'Competence based education and training: Background and origins', in J.W. Burke (ed.), *Competency Based Education and Training*, Falmer Press, London, 1989, pp.10–25.

Terminology

Confusion often arises over the use of the term 'competence' to indicate a capacity in an individual and a 'competence' as an element of a life role or an occupation. NCVQ refers to 'Units of Competence' and 'Elements of Competence' thus tending to avoid the use of coined terms; NCVQ also refers to 'general' and 'specific' competence. This brings some (welcome) definition to the terminology for future development. In reporting the earlier developments, the coined terms 'competences' or 'competencies' are often seen to be applied in the US (and some UK) literature to describe discrete elements or activities. Where it has been necessary to use this terminology 'competences' is preferred.

Early US sources show Performance Based Education in some cases as an alternative to Competence Based Education. Thus, early articles refer to Performance Based Teacher Education (PBTE). There are conceptual differences in the views of some writers, but this chapter takes the terms as being virtually synonymous, since competence based curriculum design demands performance based assessment. Competence based education and training (CBET) is therefore used as the preferred term for this chapter, to allow for potential applications across the spectrum of post-secondary education and training. Standard English spelling is used, including quotations, rather than a mixture of UK and US conventions.

The development of CBET in the USA

The purpose of this chapter is to review the background of the competency based movement in education and training (CBET)—mainly as it has developed in the USA—and to relate earlier aspirations with current trends in the UK. The literature on CBET is extensive, though much of the early work was either redundant or ephemeral. The references used are necessarily selective and include some sources which are best accessed through data bases such as ERIC.

The competency based movement, under that label, has been around for 20 years or more in the USA. Its origins can, however, be traced further back to the 1920s, to ideas of educational reform linked to industrial/business models centred on specification of outcomes in behavioural objectives form. From the mid 1960s onwards the demand for greater accountability in education, for increased emphasis on the economy, and towards more community involvement in decision-making gave a great impetus to the concept of CBET. Although it would be an exaggeration to claim that it has been universally adopted in the USA, there is considerable evidence that the movement has had pervasive effects in many parts of the diverse system of that nation.

It is widely agreed that competency based education has its roots in teacher education (Burke *et al.*, 1975; Elam, 1971; Houston, 1980). Later developments extended applications of the idea to elementary schools, to minimum competency standards for high school graduation and to vocational education. There has also been some interest in the professions—particularly in the health related field. Examples of such applications will be discussed later in the chapter but much of the conceptual/theoretical background arises out of early work done in teacher education.

CBET and teacher education

The 1960s were tumultuous times in education in the USA. Extensive demands for curriculum reform, large investment of federal funds in curriculum development and a concurrent dissatisfaction with teacher training were features of the climate when CBET emerged. Calls for greater relevance in the training of teachers (Conant, 1963; Koerner, 1963) and for a more visible accountability to the taxpayer were prominent.

The genesis of CBET, as a distinct response to societal changes, was fuelled by the US Office of Education in 1968 when it gave ten grants to colleges and universities to develop model training programmes for the preparation of elementary school teachers. These models had certain characteristics including 'the precise specification of competences or behaviours to be learned, the modularisation of instruction, evaluation and feedback, personalisation, and field experience' (Swanchek and Campbell, 1981). The models concentrated on pupil achievement and, as Swanchek and Campbell note: 'for many it easily and simplistically followed that there must be a connection between teacher competence and pupil learning'. Moreover, it followed from this that only competent teachers must be allowed to enter the profession and that teacher preparation and certification should be centred on producing and verifying competence. Politicians and State Departments then pressed for certification policies which were intended to effect school improvement through the reform of teacher education. There were also many within the teacher training system who supported reform and were keen to establish a clear cut movement for change. To assist the educational community to evaluate the potential of competency/performance based teacher education, the American Association of Colleges of Teacher Education published a 'state-of-the-art' paper. This served to clarify and establish the characteristics of PBTE (Elam, 1971).

Thus, by the early 1970s it seems that competency based teacher education had become almost a self-sustaining movement, apparently carrying a great deal of face validity as far as some administrators, politicians and state certification agencies were concerned (Lindsey, 1976). Teacher over-supply made the quest for quality more urgent and permitted a greater stringency in applying certification procedures. CBET was seen by some State departments as the means of creating and enforcing the standards so long talked about, but, until then, not politically acceptable or enforceable in a period of teacher shortage and institutional unrest (Hertzberg, 1976).

Hasty mandating of CBET as a required approach to teacher training and certification created a strong reaction from many higher education institutions. There were those with philosophical objections, (Smith, 1975; Broudy, 1981) and others who were more concerned with the pace rather than the direction of change (Swanchek and Campbell, 1981; Spady, 1977). Apart from the threats to institutional autonomy and academic freedoms there were other, practical, issues to be faced, since the mandating of CBET as a sole system for the education and training of teachers has profound implications for administration, resources and teaching methods.

The rhetoric of CBET outpaced implementation in the early 1970s; it was an untried system, albeit with a rational appeal, but still unproven. There was little or no research evidence to show superiority over other forms of teacher preparation. A number of reviews of the existing research on the relationships between teacher behaviour and pupil performance showed little evidence of positive, causative links (Huff, 1976; Heath and Neilson, 1974). The lack of a sound research base was, justifiably, seen as a serious drawback; though the same charge could have been made and upheld in regard to more conventional kinds of teacher training.

Reactions against hasty mandating and over-zealous promotion of CBET tended to slow down the pace of change. Legal suits (e.g., in the State of Texas) showed it to be unconstitutional to mandate a single form of teacher education. States were therefore constrained to take a more consultative stance and to work with, and through, the universities and colleges to develop systems acceptable to administrators, politicians and teacher educators. The reaction of HE institutions to the challenges posed by CBET was, of course, varied. But, with substantial federal and state funding available for research and development (and earmarked for CBET) many university and college departments embraced the concept and set about the redesign of programmes.

The US Office of Education continued to support the promotion of CBET through a National Consortium of Competency Based Education Centres (Burke *et al.*, 1975). The consortium did valuable work in coordinating activities across the nine major centres engaged in USOE funded development work and assisted the dissemination of the concept. Burke *et al.*, note that 'One of the continuing problems faced by institutions attempting to re-do their teacher education programmes in the direction of more competency based activities is the general lack of definition and criteria for just what constitutes a competency based teacher education programme' (p. i). The National Consortium of CBE Centres therefore set out to develop a set of 'Criteria for Describing and Assessing Competency Based Programmes'. These criteria still look surprisingly fresh in regard to current trends in the UK. They are potentially applicable across the fields of education and training so are reproduced in Figure 2.1 in a short format (the extended format includes an evaluation instrument based on the criteria).

Figure 2.1 Criteria for describing and assessing competency-based programmes

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Competency Specifications

1 Competences are based on an analysis of the professional role(s) and/or a theoretical formulation of professional responsibilities.

2 Competency statements describe outcomes expected from the performance of professionally related functions, or those knowledges, skills, and attitudes thought to be essential to the performance of those functions.

3 Competency statements facilitate criterion referenced assessment.

4 Competences are treated as tentative predictors of professional effectiveness, and are subjected to continual validation procedures.

5 Competences are specified and made public prior to instruction.

6 Learners completing the CBE programme demonstrate a wide range of competency profiles.

Instruction

7 The instructional programme is derived from and linked to specified competences.

8 Instruction which supports competency development is organised into units of manageable size.

9 Instruction is organised and implemented so as to accommodate learner style, sequence preference, pacing and perceived needs.

10 Learner progress is determined by demonstrated competence.

11 The extent of learner's progress is made known to him/her throughout the programme.

12 Instructional specifications are reviewed and revised based on feedback data.

Assessment

13 Competency measures are validly related to competency statements.

14 Competency measures are specific, realistic and sensitive to nuance.

15 Competency measures discriminate on the basis of standards set for competency demonstration.

16 Data provided by competency measures are manageable and useful in decision making.

17 Competency measures and standards are specified and made public prior to instruction.

Governance and Management

18 Policy statements are written to govern, in broad outline, the intended structure, content, operation and resource base of the programme.

19 Management functions, responsibilities, procedures and mechanisms are clearly defined and made explicit.

Total Programme

20 Programme staff attempt to model the attitudes and behaviours desired of students in the programme.

21 Provisions are made for staff orientation, assessment, improvement and reward.

22 Research and dissemination activities are an integral part of the total instructional system.

23 Institutional flexibility is sufficient for all aspects of the programme.

24 The programme is planned and operated as a totally unified, integrated system.

(Source: Burke et al., 1975)

It will be noted that compliance with all of the criteria in Figure 2.1 would demand wholesale system revision. Not every institution was ready and willing to adopt the whole system; indeed many felt that the major aims of CBET could be met without serious disturbance to existing schemes. Consequently there has been a great deal of adaptation of the concept, often to the despair of the more committed developers. The early and influential work of Elam (1971) did in fact produce a conceptual model which defined essential, implied, and related desirable characteristics of CBET. This model, shown in Figure 2.2 has been widely used to explain CBET in relation to vocational education and is perhaps more acceptable to institutions wishing to develop CBET in a gradual or incremental way[1].

Figure 2.2 Characteristics of CBE programmes (after Elam, 1971)

Essential Elements

1 Competences are role derived, specified in behavioural terms and made public.

2 Assessment criteria are competency based, specify mastery levels and are made public.

3 Assessment requires performance as prime evidence but takes knowledge into account.

4 Individual student progress rate depends on demonstrated competency.

5 The instructional programme facilitates development and evaluation of specific competences.

Implied Characteristics

1 Individualisation of learning.

2 Feedback to learners.

3 Emphasis on exit rather than admission requirements.

4 Systematic programme.

5 Modularisation.

6 Student and programme accountability.

Related Desirable Characteristics

1 Field setting for learning.
2 Broad base for decision making.
3 Provision of protocol and training materials.
4 Student participation in decision making.
5 Research oriented and regenerative.
6 Career continuous.
7 Role integration.

Figure 2.2 may give rise to the thought that many of the listed characteristics have appeared as innovations of recent years without the CBET label being attached. The negotiated curriculum, self-paced learning, modules, profiling, work-based and task-based learning have all been popular themes amongst innovators in the UK. The crucial difference is that many of these innovations have been grafted on to existing subject based curricula without being committed to outcomes stated in terms of competence, or to *ab-initio* work in defining the elements of competence.

The wider application of CBET

To continue the account of developments in the USA; it is something of an irony that the application of CBET to vocational education and training in general had to be led by teacher training. There were those who thought that vocational education had always been competence based (Broudy, 1981) but this was an outsider perspective. In fact in the USA, as in the UK, the vocational curricula were usually devised by teachers for institution based education, often placing more emphasis on book knowledge than on direct knowledge of practice. There was persistent dissatisfaction in industry with the relevance of college based courses. The CBET movement appeared, however, to offer a new approach to the design and implementation of vocational education and training—particularly in the opportunities it offered for a much closer cooperation between the education/training function and industry, business and the professions.

Federal funding was widely used to stimulate change and development in the devolved systems of the States but the National Centre for Research in Vocational Education (NCRVE) at Columbus, Ohio, took a leading role in federally funded developments over a twenty-year period. Much of that development centred on the production of Performance Based Teacher Education Modules (Hamilton and Quinn, 1978). The original set of 100 modules was designed for 'mainstream' vocational educators but has since been extended to cover special/exceptional needs, basic skills, instructional management, implementing CBE, educational administration, adult education, industry training instructors and career education. These modules have been widely marketed and sold in the USA and elsewhere in the world (AAVIM, 1988). A review of this particular modular system was undertaken for the Further Education Unit in 1981 (Tuxworth, 1982), with the general conclusion that some of the modules were suitable for use in an adaptive mode but that care was needed in selecting and using them. Evaluation of the use of these modular learning materials, both in the USA and in the UK shows some potential for misuse (Adamsky, 1981; Tuxworth, 1982).

In considering CBET it is necessary to draw differences between the concept of CBET, systems for applying the concept and materials, usually in modular form, which are used for instruction/learning within given systems. Figures 2.1 and 2.2 go some way in delineating the concept but extend to guidelines for delivery systems and, to some extent, assessment of performance. Systems in the USA have been developed on a state-wide or regional basis (Ballard, 1986; Glenn, 1986; Blank, 1987). More usually, however, the delivery systems are institutionally and locally centred. There are some notable examples of fully functioning CBET delivery systems in certain institutions in Florida for example (Tuxworth, 1988). But even with a state-wide CBET policy there are wide variations within, and between, institutions in the take up and development of the concept (Blank, 1987).

CBET in the UK

In the UK there was patchy and desultory interest in CBET until the early 1980s, when the basis of a firmer training policy was laid by a series of White Papers (DOE, 1981; DOE and DES, 1984;1985;1986). The emphasis on competence as the necessary outcome of training was clear and it was not long before the notion was applied to some stages of education. Other associated reforms were indicated in vocational education and training (VET), e.g. more flexible programmes, certification related to performance rather than time-serving and better access to VET through modular programmes.

The UK approach to CBET, at least as far as the NCVQ is concerned, is expressed in their *Criteria and Procedures* (NCVQ, 1989). There is, within this guidance, no prescription of delivery systems nor of assessment methods. The concept is, however, established; together with principles for the derivation and expression of competence standards and performance criteria. It has to be said that much remains to be done to apply the NVQ Guidance in order to achieve the main aims of NCVQ, particularly in relation to higher levels of occupations/professions.

CBET: For and against

CBET is not without its critics, who often focus on two major points.

1 That the conception and definition of competence is inadequate—the competent person has abilities and characteristics which are more than the sum of the discrete elements of competence derived from job analysis ('the whole is more than the sum of the parts'). Some proponents are seen to pursue a reductionist approach and 'literally analyse competence to bits' (Wolfe, 1980).

2 There is a lack of research evidence that CBET is superior to other forms of education/training in output terms. Face validity is acknowledged to be high and it is easy to show content validity. What is more problematic is predictive validity (Pottinger, 1980); but this is not peculiar to CBET.

The first objection, i.e., of an inadequate conception of competence is often related to the methods of analysis used to derive elements of competence. There are two major approaches to this, which have developed separately and are often seen as mutually exclusive. The first is based on functional analysis of the occupation/profession and its necessary duties and tasks. This usually yields an extensive list of competence elements grouped under major duty areas or functions. Performance criteria are usually developed to indicate minimum or normative competence levels. Directly related knowledge and functional attitudes and values may be incorporated in competence elements and performance criteria. The methodology of occupational analysis involves consultations with role holders and their supervisors to establish a provisional list of competence elements. This should be verified by a larger sample of the target population—perhaps by Delphi techniques (Norton, 1985; Mainframe, 1987; Tuxworth and Ciechanowski, 1987). One product of this type of analysis is a competence map used to develop individual training programmes and assessment profiles. Such maps have been widely developed in the USA and have been prepared for some uses in the UK (Tuxworth, 1982; Mainframe, 1987).

The second approach to competence analysis is more concerned with identifying the characteristics of superior performers in the occupational role. This tends to yield fewer and more generic characteristics or, as they have been termed, 'soft skills'. The origins of this approach are shown in the work of McLelland and others at the McBer Corporation and Harvard Business School (Klemp, 1977; Spencer, 1983). A form of critical incident analysis is used to elicit the characteristics from a selection of role incumbents, with emphasis on those who are identified as highly successful performers. These methods have had some influence in management education in the USA and UK; Figures 2.3 and 2.4 show lists derived for management training (USA) and Senior Civil Servants (UK).

Figure 2.3 The competency programme of the American Management Association

GOAL AND MANAGEMENT ACTION CLUSTER	—deals with the manager's initiative, image, problem solving skills and goal orientation. * EFFICIENCY ORIENTATION * PROACTIVITY * CONCERN WITH IMPACT * DIAGNOSTIC USE OF CONCEPTS
DIRECTING SUBORDINATES CLUSTER	—this involves a manager's freedom of expression both in terms of giving directives and orders, as well as giving feedback to help develop subordinates. * USE OF UNILATERAL POWER * DEVELOPING OTHERS * SPONTANEITY

HUMAN RESOURCE MANAGEMENT CLUSTER	—managers with these competences have positive expectations about others, have realistic views of themselves, build networks or coalitions with others to accomplish tasks and stimulate cooperation and pride in work groups. * ACCURATE SELF ASSESSMENT * SELF CONTROL * STAMINA AND ADAPTABILITY * PERCEPTUAL OBJECTIVITY * POSITIVE REGARD * MANAGING GROUP PROCESS * USE OF SOCIALISED POWER
LEADERSHIP CLUSTER	—this cluster represents a manager's ability to discern the key issues, patterns or objectives in an organisation, and to then conduct himself or herself and communicate in a strong fashion. * SELF CONFIDENCE * CONCEPTUALISATION * LOGICAL THOUGHT * USE OF ORAL PRESENTATIONS

A SUMMARY OF THE CLUSTERS AND COMPETENCES IN THE COMPETENCY PROGRAMME OF THE AMERICAN MANAGEMENT ASSOCIATION

(Source: Evarts, 1987)

Note that the competence analysis and specification above was based on the methodology of 'soft skills' developed by the McBer Corporation of Boston, Mass. The specification is obviously not in the form preferred by NCVQ. The issue is whether, if such generic competences are held to be valid, they can be related to a functional analysis. Duties and tasks would need to be identified to provide units of occupational competence. Competence elements and performance criteria would then need to incorporate suitable manifestations of the generic skills above.

Figure 2. 4 Summary of competences for senior civil servants

Example 6 COMPETENCES FOR SENIOR CIVIL SERVANTS

CORE COMPETENCE AREAS—
- MANAGEMENT OF RESOURCES/ ORGANISATIONS
- MANAGEMENT OF STAFF
- KNOWLEDGE/UNDERSTANDING OF WORK CONTEXT
- MANAGING OWN WORK
- INFORMATION TECHNOLOGY
- MORE SPECIALISED KNOWLEDGE/EXPERTISE

IMPORTANT COMPETENCE AREAS—
- REPRESENTATIONAL/ PRESENTATIONAL SKILLS
- WRITTEN/ADMINISTRATIVE SKILLS
- POLICY MANAGEMENT
- ECONOMICS
- ACCOUNTING AND FINANCE
- QUANTITATIVE SKILLS/ STATISTICS
- LAW
- INDUSTRIAL RELATIONS

'IMPORTANT AND DIFFICULT ACTIVITIES' RELATED TO COMPETENCE ARE HIGHLIGHTED AS:

1. Keeping up-to-date with developments in own area of work/expertise.
2. Allocating priorities to your own work/managing time.
3. Motivating your staff.
4. Coping with tight deadlines.
5. Adapting an organisation to meet changing needs.
6. Understanding and interpreting the needs of 'users' or (customers).
7. Assessing the strengths and weaknesses of your staff.
8. Assessing policy options.

(Source: Coster 1987)

CBET and the professions

The impact of CBET on the professions in the USA has been variable. With some risk of indulging in dangerous generalisations it would be safe to say that professional and occupational licensing has been affected in only a superficial way. The tendency is still to base occupational licensing on tests of knowledge plus some evidence of experience in practice. In reporting a wide-ranging survey, Pottinger, (1980) was pessimistic about the state of competency based licensing at that time '... more than 2000 occupations are currently regulated in some way, yet ... the credentialing systems usually lack a research base for choosing indicators of competence, for designing measures (of competence), or for demonstrating a relationship between the requirements for obtaining a professional credential and the competent discharge of one's professional duties' (p. 136).

The health related professions in the USA, from physicians through to care assistants have, however, been prominent in applying competency based notions to both initial training and continuing professional development (Norman, 1985; Neumann, 1987; Hart *et al.*, 1986; AACPM, 1982; ADA, 1987). In the case of some of the national professional associations, competency based specifications are issued as *guidelines* for accredited institutions. In other cases quite sophisticated national tests have been developed to assess knowledge directly related to specified dimensions of competence (NABP, 1988; Saxton *et al.*, 1985). There is also evidence of the extension of CBET to health related professions in the UK. The requirements for the licensing of nurses, for example, are based on a schedule of competences (HMSO, 1983). These rules are carried into effect through curricula devised by approved schools of nursing and validated by one of the four national Boards (e.g., ENB, 1987).

Conclusion

This has been, necessarily, a superficial review of the development of CBET with many issues left unexamined. The CBET movement in the USA has been internalised in some quarters but has still to be assimilated in others. The genesis of the CBET movement in the UK is more clear cut—with an obvious political commitment to the notion. The movement in the UK is now quite strong but a great deal of development work is needed. This must be accompanied by research to assist the improvement of system design and implementation: there are substantial opportunities for people in the higher education system to guide and influence the way CBET develops. In particular, there is a need for refinement of the methodologies of competence analysis, of exploration of the potential application of CBET to professions and in evaluation of pilot and operational schemes in both summative and formative ways. Improved methods for the assessment of competence, with the assurance of validity, reliability and cost effectiveness are no less important here, or problematic, than in more traditional spheres. In addressing these opportunities there are some benefits to be derived from the rather chequered development of the CBET approach in the USA and some costly mistakes may be avoided by study of that system.

I would like to offer some propositions for further thought.

(a) There is only limited use in universal definitions of competence, though these may help to establish the framework for more detailed work: each occupational/professional field needs to develop its own conception and working definition. Some fields are more process than product based and may often be context dependent. Competence in many cases is neither value-free nor independent of the context of its application (see Wolfe, 1980).

(b) CBET does not diminish the importance of knowledge and understanding; it does however change the grounds for its justification.

(c) Methods of occupational/professional analysis should be sophisticated enough to give a multi-dimensional view of competence. There is a strong case for ' triangulation' in analysis to avoid a simplistic representation. There has been a tendency to 'tunnel vision' in some examples from the USA with examples which are too rigidly anchored to task analysis. Any model of competence should incorporate both the analysed functions of the occupation and the characteristics of highly competent role holders.

(d) CBET analysis, specification and delivery systems should take account of current occupational needs but still allow for role development and role extension. There is a tendency for some methods of analysis simply to confirm the status quo. The training specification or curriculum which arises from occupational needs should allow for growth and for transfer.

(e) CBET has great potential in continuing professional development (CPD), particularly where it is necessary to ensure that professionals maintain and adapt their competences to new conditions. Licensed occupations (and others) need to maintain competence through CPD and regular performance review.

(f) The notion of 'minimum competence levels' is useful for certification purposes but carries some risks if these are the only standards available. Many organisations depend on high level performers for their success. We should be looking for ways of cultivating excellence in occupational competence and the recognition of enhanced performance.

(g) Whilst a national framework for vocational/professional qualifications has many implications, it does not demand nationally standardised arrangements for the delivery of CBET. But the concept cannot easily be assimilated to conventional courses of a monolithic kind. There has to be change in a number of ways, which may have quite radical effects on course design and implementation.

(h) The providers of education and training have a great deal to do to improve access, to extend opportunity to a wider range of learners and to develop more flexible learning resources. We can make more use of experiential learning, credit accumulation and transfer; these changes are not dependent on CBET but may be greatly assisted through it.

(i) There is a need to continue to find ways of engendering and assessing basic skills (generic competences) through well defined vocational education and training.

References

AACPM (1982) *Competency Task Index for Podiatric Medicine—Final Draft*, American Association of Colleges of Podiatric Medicine.

AAVIM (1988) *Catalogue of Competency Based Teacher Education Materials*, Athens, Georgia, American Association for Vocational Instructional Materials.

ADA (1987) *Accreditation Standards for Dental Education Programmes*, Chicago, Ill., American Dental Association.

ADAMSKY, R. (1981) *Does Performance Based Teacher Education Really Work? (Case Studies)*, Columbus, OH, National Center for Research in Vocational Education.

BALLARD, J.B. (1986) 'Arkansas' PBTE and CBAE Professional Development Programmes' in Harrington and Kalamas (Eds) *Achieving Professional Excellence—Conference Proceedings*, Columbus, Ohio, National Center for Research in Vocational Education.

BLANK, W. (1987) 'A statewide system of competency based instruction', in *Journal of Industrial Teacher Education* 24 (4), pp. 36-46.

BROUDY, H. (1981) *Towards a Theory of Vocational Education*, Occasional Paper No. 73, Columbus, Ohio, National Centre for Research in Vocational Education.

BURKE, J. B., HANSEN, J. H., HOUSTON, W. R. and JOHNSON, C. (1975) *Criteria for Describing and Assessing Competency Programmes:* Syracuse University, NY, National Consortium of Competency Based Education Centres.

CONANT, J. B. (1963) *The Education of American Teachers*, New York, McGraw-Hill.

COSTER, P. (1987) 'The Civil Service Senior Management Development Programme' in *Management Education and Development*, 4 (2) pp. 60-64.

DOE (1981) *A New Training Initiative; A Programme for Action*, Cmnd. 8455, London, HMSO.

DOE and DES (1984) *Training for Jobs*, Cmnd. 9135, London, HMSO.

DOE and DES (1985) *Education and Training for Young People*, London, HMSO.

DOE and DES (1986) *Working Together: Education and Training*, Cmnd. 9823, London, HMSO.

DHSS (1983) *Nurses Manpower Planning: Approaches and Techniques*, Approval Order, Stat. Inst. No. 873, London, HMSO.

ELAM, S. (1971) *Performance Based Teacher Education—What is the State of the Art?* Washington, DC, American Association of Colleges of Teacher Education, Dec, 1971.

ENB (1987) *Annual Report, 1986*, English National Board for Nursing, Health Visiting and Midwifery.

EVERTS, H. F. (1987) 'The competency programme of the American Management Association', in *Industrial and Commercial Training, 19 (1)*, pp. 3-7.

GLENN, J. W. (1986) 'Statewide Delivery of Teacher Education in New York State' in *Achieving Professional Excellence—Proceedings of National Conference on Performance Based Approaches to Training*, Columbus, Ohio, National Centre for Research in Vocational Education.

HAMILTON, J. and QUINN, K. (1978) *Resource Person Guide to Using PBTE Materials*, Athens, GA, American Association for Vocational Instructional Materials.

HART, I., HARDEN, R. and WALTON, M. (Eds) (1986) *Newer Developments in the Assessment of Clinical Competence,* Montreal, Heal Publications.

HARRINGTON, L. and KALAMAS, D. (Eds) (1985) *Achieving Professional Excellence—Proceedings of National Conference on Performance Based Approaches to Training;* Columbus, Ohio; National Centre for Research in Vocational Education.

HEATH, R. and NEILSON, M. (1974) 'The Research Base for PBTE' in *Review of Educational Research* 44, 4, p. 475 ff.

HERTZBERG, H. (1976) 'CBTE—Does it Have a Past, or a Future' in *Teachers' College Record,* 78, 1, pp. 1-21.

HOUSTON, R. H. (1980) 'An analysis of the performance-based teacher education movement' in Fardig, G. (Ed.) *Prospects of Performance-Based Vocational Teacher Education; Proceedings of National Invitational Conference at Orlando, Fla., March, 1980,* College of Education, University of Central Florida.

HUFF, S. (1976) 'Credentialling by tests or degrees?' in *Harvard Educational Review,* 44, 2, pp. 246-69.

HUFF, S. (1980) 'The assessment of occupational competence—Sect. 6. A synthesis of issues', Boston, Mass. McBer Corporation. (ERIC Ref. ED 192 170).

KLEMP, G. O. (1977) 'Three factors for success in the world of work: Implications for curriculum in higher education', in Bermilze, D. (Ed.) *Relating Work and Education: Current Issues in Higher Education,* San Francisco, Jossey-Bass.

KOERNER, J. (1963) *The Miseducation of American Teachers,* Boston, Mass, Houghton Mifflin.

LINDSEY, M. (1976) 'CBTE and certification in New York State: An overview' in *Teachers' College Record,* 77, 4, pp. 505-16.

MAINFRAME (1987) *One Day Dacum: A Handbook,* Haringey Education Authority, The Mainframe Project.

NABP (1988) 'NABPLEX: A candidates review guide to examinations', Park Ridge, Illinois; National Association of Boards of Pharmacy.

NCVQ (1989) *National Vocational Qualifications: Criteria and Procedures,* National Council for Vocational Qualifications.

NEUMANN, L. M. (1987) 'Long term continuing education for dentists' in *Journal of Dental Education, 51,* 8, pp. 492-6.

NORMAN, G. R. (1985) 'Defining competence—A methodological review' in Neufeld and Norman (Eds) *Assessing Clinical Competence,* New York, Springer (pp. 15-35).

NORTON, R. E. (1985) 'New developments in performance based teacher education' in Harrington and Kalamas (1985) *op cit.*

POTTINGER, P. S. (1980) 'The assessment of occupational competence—Part 3', in *Competence Assessment for Occupational Certification,* Boston, Mass., McBer Corporation. (ERIC Ref. ED 192 167; Feb. 1980).

SAXTON, D. F., PELIKAN, P. K., NUGENT, P. M. and NEELMAN, S. R. (Eds) (1985) *Mosby's Assess Test— A Practice Exam. for RN Licensure,* Princeton N.J., Mosby Systems.

SMITH, R. A. (Ed.) (1975) *Regaining Educational Leadership,* New York, John Wiley.

SPADY, W. G. (1977) 'Competency based education: A bandwagon in search of a definition' in *Educational Researcher,* 6, 1, Jan. 1977.

SPENCER, L. (1979) *Identifying, Measuring and Training Soft Skill Competencies,* Boston, Mass., McBer Corporation.

SPENCER, L. (1983) *Soft Skill Competencies*, Edinburgh, Scottish Council for Research in Education.

SWANCHEK, J. and CAMPBELL, J. (1981) 'Competence/performance-based teacher education: The unfulfilled promise' in *Educational Technology*, June, 1981, pp. 5-10.

TUXWORTH, E. (1982) *Competency in Teaching*, London, Longmans Green, (for Further Education Unit).

TUXWORTH, E. and CIECHANOWSKI, A. (1987) 'Competences of tutors and trainers—A research report' (Unpublished) summarised in *Instructional Competences* (1987)—City & Guilds, London.

TUXWORTH, E. (1988) 'Open entry to mastery learning?' in *Competence and Assessment* No. 4, April, 1988, pp. 6-7.

WOLFE, D. M. (1980) 'Developing professional competence in the applied behavioural sciences', in *New Directions for Experiential Learning*, 8, pp. 1-16.

Other sources

ADAMS, K. (1981) *Does Performance-based Teacher Education Really Work? Case Studies of a Model Curriculum for Vocational Teacher Education*, Columbus, Ohio, National Centre for Research in Vocational Education.

AQUINO, J. (Ed.) (1976) *Performance-Based Teacher Education: A Source Book*, Washington, DC, American Association of Colleges of Teacher Education.

DUBRAVIC, V. (1986) *Assessing Vocational Teachers; R&D Series No.262*, Columbus, Ohio; National Centre for Research in Vocational Education.

MEDLEY, D., SOAR, R., and SOAR, R. (1975) *Assessment and Research in Teacher Education: Focus on PBTE*, Washington, DC, American Association of Colleges of Teacher Education.

NCRVE (1985) *Prepare to Install Competency-Based Education, Modules LT-B-4 for Vocational Education Administrators*, Columbus, Ohio, National Centre for Research in Vocational Education.

NCRVE (1986) *Implementing Competency Based Education, Modules K-l to K-6*, Columbus; Ohio; National Centre for Research in Vocational Education.

Note

1 It differs from the later version shown in Figure 2.1 in one crucial respect. Characteristic No. 1 allows 'theoretical formulation of professional responsibilities', which may allow some to avoid the stricter disciplines of professional role analysis.

SECTION 3

THE CONCEPT OF COMPETENCE

8

FROM NOVICE TO EXPERT

PATRICIA BENNER

P. Benner, 'From novice to expert', *American Journal of Nursing*, Mar., 1982, pp.402–7.

Nursing in acute-care settings has grown so complex that it is no longer possible to standardize, routinize, and delegate much of what the nurse does.

In the past, formalization of nursing care and interchangeability of nursing personnel were considered easy answers to nurse turnover The discretionary responsibility of nursing care for patient welfare was ignored, and little attention was paid to providing incentives and rewards for long-term careers in clinical nursing in hospitals. This is no longer tenable.

Increased acuity levels of patients, decreased length of hospitalization, and the proliferation of health care technology and specialization have increased the need for highly experienced nurses. The complexity and responsibility of nursing practice today requires long-term and ongoing career development. This, in turn, requires an understanding of the differences between the experienced nurse and the novice.

The Dreyfus model of Skill Acquisition offers a useful tool for doing this. This model was inductively derived by two University of California, Berkeley, professors—Stuart Dreyfus, a mathematician and systems analyst, and Hubert Dreyfus, a philosopher—from their study of chess players and pilots(1,2).

In my studies, I have found that the model can be generalized to nursing. It takes into account increments in skilled performance based upon experience as well as education. It also provides a basis for clinical knowledge development and career progression in clinical nursing.

Briefly, the Dreyfus model posits that, in the acquisition and development of a skill, one passes through five levels of proficiency:

- novice
- advanced beginner
- competent
- proficient
- expert

The levels reflect changes in two general aspects of skilled performance. One is a movement from reliance on abstract principles to the use of past, concrete experience as paradigms. The other is a change in the perception and understanding of a demand situation so that the situation is seen less as a compilation of equally relevant bits and more as a complete whole in which only certain parts are relevant(2).

To evaluate the practicality of applying the Dreyfus model to nursing and to clarify the characteristics of nurse performance at different stages of skill acquisition, interviews and participant observations were conducted with 51 experienced nurse clinicians, 11 new graduate nurses, and 5 senior nursing students in six different hospitals—two private community hospitals, two community teaching hospitals, one university medical center, and one inner-city general teaching hospital. Much confirming and no disconfirming evidence was found for use of the Dreyfus Model of Skill Acquisition in clinical nursing practice (3, 4).

Level I: Novice

Beginners have no experience with the situations in which they are expected to perform tasks. In order to give them entry to these situations, they are taught about them in terms of objective attributes. These attributes are features of the task that can be recognized without situational experience.

Common attributes accessible to the novice include weight, intake and output, temperature, blood pressure, pulse, and other such objectifiable, measurable parameters of the patient's condition.

Novice practitioners are also taught rules to guide action in respect to different attributes. The following is an example of such a context-free rule:

> To determine fluid balance, check the patient's morning weights and daily intake and output for the past three days. Weight gain in addition to an intake that is consistently greater than 500 cc could indicate water retention, in that case, fluid restriction should be started until the cause of the imbalance can be determined.

The heart of the difficulty that the novice faces is the inability to use discretionary judgment. Since novices have no experience with the situation they face, they must use these context-free rules to guide their task performance. But following rules legislates against successful task performance because no rule can tell a novice which tasks are most relevant in a real situation or when an exception to the rule is in order.

Level II: Advanced beginner

The advanced beginner is one who can demonstrate marginally acceptable performance. This person is one who has coped with enough real situations to note (or to have them pointed out by a mentor) the recurrent meaningful situational components, called aspects.

In the Dreyfus model, the term 'aspects' has a very specific meaning. Unlike the measurable, context-free attributes of features that the inexperienced novice uses, aspects are overall, global characteristics that require prior experience in actual situations for recognition.

For example, assessing a patient's readiness to learn depends on experience with previous patients in similar situations and similar teaching-learning needs. An expert clinician describes her assessment of a patient's readiness to learn about his continent ileostomy this way:

> Earlier, I thought he was feeling helpless about the operation he had just had. He looked as though he felt crummy—physically, sort of stressed-looking, nervous-looking. Furthermore, he was treating the wound physically very gingerly. He didn't need to be that gentle with it. But, on this morning, it was different, he began to ask questions.

An instructor or mentor can provide guidelines for recognizing such aspects as readiness to learn; for example, 'Notice whether or not the patient asks questions about the surgery or the dressing change.' 'Observe whether or not the patient looks at or handles the wound.' But the guidelines are dependent on knowing what these aspects sound like and look like in a patient care situation.

While aspects may be made explicit, they cannot he made completely objective. It makes a difference in the way that the patient asks about the surgery or the dressing change. You have to have some experience with prior situations before you can use the guidelines. Aspect recognition is dependent on prior experience.

The advanced beginner, or instructor of the advanced beginner, can formulate guidelines for actions in terms of attributes and aspects. These action guidelines integrate as many attributes and aspects as possible, but they tend to ignore the differential importance. In other words, they treat all attributes and aspects as equally important. The following comment about advanced beginners in an intensive care nursery illustrates this.

> I give very detailed and explicit instructions to the new graduate: When you come in and first see the baby, take the vital signs and make the physical examination. Then, check the IV sites, check the standby ventilator and make sure that it works, and check the monitors and alarms. When I say this to new graduates, they do exactly what I tell them to do, no matter what else is going on... They can't choose one to leave out. They can't choose which is more important... They can't do for one baby the things that are most important, then go to the next baby and do the things that are most important and leave out the things that can be left until later.

Novices and advanced beginners can take in little of the situation—it is too new, too strange. Besides, they have to concentrate on remembering the rules they have been taught. As the expert clinician quoted above adds,

> If I say, you have to do these eight things, they do those things. They don't stop if another baby is screaming its head off. When they do realize that the other child needs attention, they're like mules between two piles of hay.

Much time is spent by preceptors and new graduates on aspect recognition. For example, in making physical assessments, aspect recognition is an appropriate learning goal. The nurse will practice discriminating between breath sounds indicative of pulmonary edema and those indicative of pneumonia. But in practice areas, where the clinician has already attained competency, aspect recognition will probably be redundant; the competent clinician will focus on the more advanced clinical skill of judging the relative importance of different aspects of the situation.

The major implication for both preservice and inservice education is that the advanced beginner needs support in the clinical setting. Advanced beginners need help in setting priorities since they operate on general guidelines and are only beginning to perceive recurrent meaningful patterns in their clinical practice. Their patient care must be backed up by competent level nurses to ensure that important patient needs do not go unattended because the advanced beginner cannot yet sort out what is most important.

Level III: Competent

Competency, typified by the nurse who has been on the job two to three years, develops when the nurse begins to see his or her actions in terms of long-range goals or plans. The nurse is consciously aware of these plans, and the goal or plan dictates which attributes and aspects of the current and contemplated future situation are to be considered most important and which can be ignored. For the competent nurse, a plan establishes a perspective, and the plan is based on considerable conscious, abstract, analytic contemplation of the problem. A preceptor describes her own evolution to the stage of competent, planned nursing from her earlier stimulus-response level of nursing:

> I had four patients. One needed colostomy teaching, the others needed a lot of other things. Instead of thinking before I went into the room, I got caught up... Someone's IV would stop, and I'd work on that. Then I'd forget to give someone their meds, and so would have to rush around and do that. And then someone would feel nauseated and I'd try to make them feel better while they were sick. And then the colostomy bag would fall off when I wanted to start teaching. And, all of a sudden the morning was gone, and no one had a bed bath.
>
> Now I come out of report and I know I have a couple of things that I have to do. Before I go in the room, I write down the meds I'm supposed to give for that day, and then walk in there and make sure that everybody's IV is fine ... I know) what I have to do, and I am much more organized.

Competence is evidenced by the fact that the nurse begins to see his or her actions in terms of long-range goals or plans. The competent nurse lacks the speed and flexibility of the nurse who has reached the proficient level, but the competency stage is characterized by a feeling of mastery and the ability to cope with and manage the many contingencies of clinical nursing. The competent nurse's conscious, deliberate planning helps achieve a level of efficiency and organization. Nurses at this stage can benefit from decision-making games and simulations that give them practice in planning and coordinating multiple, complex, patient care demands.

The competent level is supported and reinforced institutionally, and many nurses may stay at this level because it is perceived as the ideal by their supervisors. The standardization and routinization of procedures, geared to manage the high turnover in nursing, most often reflect the competent level of performance. Most inservice education is aimed at the competent level of achievement; few inservice offerings are aimed at the proficient or expert level of performance.

Level IV: Proficient

With continued practice, the competent performer moves to the proficient stage. Characteristically, the proficient performer perceives situations as wholes, rather than in terms of aspects, and performance is guided by maxims.

Experience teaches the proficient nurse what typical events to expect in a given situation and how to modify plans in response to these events. There is a web of perspectives, and as Dreyfus notes,

> Except in unusual circumstances, the performer will be experiencing his current situation as similar to some brain-stored, experience-created, typical

> situation (complete with its saliences) due to recent past history of events... Hence the person will experience his or her situation at all times through a perspective, but rather than consciously calculating this perspective or plan, it will simply present itself to him ot her(5).

Because of the experience-based ability to recognize whole situations, the proficient nurse can now recognize when the expected normal picture does not present itself—that is, when the normal is absent. The holistic understanding of the proficient nurse improves his or her decision making. Decision making is now less labored since the nurse has a perspective about which of the many attributes and aspects present are the important ones.

Whereas the competent person does not yet have enough experience to recognize a situation in terms of an overall picture or in terms of which aspects are most salient and most important, the proficient performer now considers fewer options and hones in on an accurate region of the problem. Aspects stand out to the proficient nurse as being more or less important to the situation at hand.

Maxims are used to guide the proficient performer, but a deep understanding of the situation is required before a maxim can be used. Maxims reflect what would appear to the competent or novice performer as unintelligible nuances of the situation. They can mean one thing at one time and quite another at another time. But once one has a deep understanding of the situation, the maxim provides directions as to what is important to take into consideration. This is revealed in the experienced nurse clinicians's account of how she weans a patient from a respirator:

> Well, you look at vital signs to see if there is anything significant there. But even here you need to do a little guessing. You have to decide if the patient is just anxious because he's so used to the machine breathing for him. And if he does get anxious, you don't really want to medicate him, because you're afraid he will quit breathing. But on the other hand, he may really need to calm down a bit. It just depends on the situation... You have your groundwork from what you have done in the past, and you know when you are going to get into trouble.

Proficient performers are best taught by use of case studies where their ability to grasp the situation is solicited and taxed. Providing proficient performers with context-free principles and rules will leave them somewhat frustrated and will usually stimulate them to give examples of situations where, clearly, the principle or rule would be contradicted.

Level V: Expert

At the expert level, the performer no longer relies on an analytical principle (rule, guideline, maxim) to connect her/his understanding of the situation to an appropriate action. The expert nurse, with her/his enormous background of experience, has an intuitive grasp of the situation and zeros in on the accurate region of the problem without wasteful consideration of a large range of unfruitful possible problem situations.

It is very frustrating to try to capture verbal descriptions of expert performance because the expert operates from a deep understanding of the situation, much like the chess master who, when asked why he made a particularly masterful move, will just say, 'Because it felt right. It looked good.'

The problem experts have telling all they know is evident in the following excerpt from an interview with an expert psychiatric nurse clinician. She has worked in psychiatry for 15 years and is highly respected by both nurse and physician colleagues for her clincial judgment and ability.

> When I say to a doctor, 'The patient is psychotic,' I don't always know how to legitimize that statement. But I am never wrong because I know psychosis from the inside out. And I feel that, and I know it, and I trust it.

This nurse went on to describe a specific situation in which she knew that a patient was being misdiagnosed as psychotic when the patient was extremely angry. The physician was convinced that the patient was psychotic and said, 'We'll do an MMPI to see who's right.' This nurse responded, 'I am sure that I am right regardless of what the MMPI says.' The results backed up the nurse's assessment, and, based on her assessment, this nurse began what was a very successful intervention for the patient.

By studying proficient and expert performance, it is possible to obtain a rich description of the kinds of goals and patient outcomes that are possible in excellent nursing practice. This knowledge of goals and possible outcomes can be useful in expanding the scope of practice of nurses who are less proficient. In fact, a vision of what is possible is one of the characteristics that separates competent performance from proficient and expert performance. Exemplars and descriptions of excellence from expert nurse clinicians can raise the sights of the competent nurse, and perhaps facilitate his or her movement to the proficient stage. By assisting the expert to describe clinical situations where his or her interventions made a difference, some of the knowledge embedded in the expert's practice becomes visible.

This is not to say that the expert never uses analytical tools. Highly skilled analytical ability is necessary for novel or new situations. Analytical tools are also necessary when the expert gets a wrong take or a wrong grasp of the situation and finds that events and behaviors are not occurring according to expectations. When alternative perspectives are not available to the experienced clinician, the only way out of the wrong grasp of the problem is analytical problem solving.

Describing expert practice

We have much to learn from the expert nurse clinicians, but to describe or document expert nurse performance, a new strategy for identifying and describing nursing competencies is needed. If, as the Dreyfus Model of Skill Acquisition posits, the expert nurse's performance is holistic rather than fractionated, procedural, and based upon incremental steps, then the strategy for describing expert nursing performance must be holistic as well.

Currently, the language used to talk about nursing practice is too simple, formal, and context-free to capture the essence and complexity of expert nursing. At best, formal models recognize and capture areas of performance typical of the novice, advanced-beginner, or competent nurse. But since most formal models focus on structure or process, the content and relational aspects of nursing practice in even the beginning levels go undescribed.

It is important to underline the claim of the Dreyfus model that there is a transformation, a qualitative leap, from the competent to proficient levels of performance. A competent nurse and a proficient nurse will not approach or solve a clinical situation in the same way. It is not that proficient nurses have internalized the rules and formulas learned during the earlier stages of skill acquisition; they are no longer using rules and formulas to guide their practice. They are now using past concrete experiences much like the researcher uses paradigms.

What can be described is what the expert intended to accomplish and what the outcomes were. Also, it is possible to get a description from the patient and it is possible to systematically observe and describe expert practice. But it is not possible to recapture from the expert in explicit, formal steps the mental processes or all the elements that go into his or her expert recognitional capacity in making rapid patient assessments. So, although you cannot recapture elemental steps in the process, you can observe and describe in narrative interpretive form the accomplishments and characteristics of expert nurse performance.

Such a narrative, interpretive approach to describe expert nurse performance is illustrated in the following example which describes the coaching function of nursing.

Illness, pain, disfigurement, death, and even birth are, by and large, segregated, isolated experiences. It makes little sense for the lay person to personally prepare in advance for the many possible illness experiences.

Nurses, in contrast, through their education and experience, develop and observe many ways to understand and cope with illness, as well as many ways of experiencing illness, suffering pain, death, and birth. Nurses offer avenues of understanding, increased control, acceptance, and even triumph in the midst of what for the patient, is a foreign, uncharted experience.

Experience, in addition to formal education preparation, is required to develop this competency since it is impossible to learn ways of being and coping with an illness solely by concept or theorem. A deep understanding of the situation is required before one acquires a repertoire of ways of being and coping with a particular illness experience. Often, these ways of being and ways of coping are transmitted nonverbally by demonstration, by attitudes, and by reactions as in the following example. A nurse clinician described an encounter with a young man close to her own age who was visiting his father who was dying. There was a rather sudden deterioration in the father, and the family was extremely distraught. The son stopped the nurse in the hall and asked how long his father would live. The nurse answered that she really didn't know, that it could be minutes, hours, days, or weeks. There was no way to tell. He then asked if there were other patients dying on the floor. The nurse responded, 'Yes.' Then, as she recounts the incident, there was a long pause, followed by a barrage of questions:

> How could I work here? How can I go home and sleep at night? How could I do what I do?
>
> No one had ever been so direct with such questions as these before, and their bluntness threw me off balance. But he was sincere and was waiting for my answer, and so I told him how I had resolved these same questions within myself. It was not quite a monologue, but for 10 plus minutes he listened intently as I described to him my feelings. I told him my philosophy about life and about dying and about nursing.
>
> I told him how gradually I had settled into the medical floor instead of using it as a stepping stone to a surgical floor—which was my first intention. I told

> him how it was difficult, and how it was emotionally draining, and how it sometimes was difficult to sleep at night.
>
> I told him how there was great satisfaction in helping a patient through the particular passage known as death and how I felt I was able to help the family also through the pain of that passage. I told him the gratification, the thing that kept me here, was in knowing that maybe somehow, I had made this particular rocky road a little smoother for those who had to travel it. With that, he hugged me, said thank you, and turned away nodding his head, with tears in his eyes. There were tears in my eyes too.

In translating for the son how the culturally avoided had become understandable and approachable to her, the nurse widened this young man's perspective and acceptance. This is what is meant by the coaching function of nursing, nurses who have come to grips with the culturally avoided or uncharted and can open ways of being and ways of coping for the patient and the family.

I have collected many examples of this particular skilled practice and am impressed that in each case the nurse did not offer the patient precepts or platitudes that might sound like, 'Even in the midst of great handicap and impossibility, I think it is possible to make the most of it.' This would be an example of inflexible teaching by precept.

Nurses, in their practice, by the way they approach a wound or the way they talk about recovery from a surgery, offer ways of understanding and avenues of acceptance. Through the nurse's own ability to face and cope with the problem, such as a difficult, draining wound, the patient can come to sense that the problem is approachable and manageable.

Experience, as it is understood and used in the acquisition of expertise, has a particular definition that should be clarified. As it is described in this model, experience is not the mere passage of time or longevity; it is the refinement of preconceived notions and theory by encountering many actual practical situations that add nuances or shades of differences to theory(6,7).

Theory offers what can be made explicit and formalized, but clinical practice is always more complex and presents many more realities than can be captured by theory alone. Theory, however, guides clinicians and enables them to ask the right questions.

Theory and research are generated from the practical world, from the practices of the experts in a field. Only from the assumptions and expectations of the clinical practice of experts are questions generated for scientific testing and theory building.

Recognition, reward, and retention of the experienced nurse in positions of direct clinical practice—along with the documention and adequate description of their practice—are the first steps in improving the quality of patient care. The Dreyfus Model of Skill Acquisition, applied to nursing and combined with an interpretive approach to describing nursing practices, offers guidelines for career and for knowledge development in clinical nursing practice.

It also indicates the importance of career ladders within clinical nursing practice and adds to our understanding of the need for and acceptance of the emergence of clinicians and clinical specialists in the patient-care setting.

References

1 Dreyfus, H.L. *What Computers Can't Do: A Critique of Artificial Reason*. New York, Harper & Row, 1972. (Paperback edition, 1979).

2 Dreyfus, Stuart, and Dreyfus, Hubert. *A Five-Stage Model of the mental Activities Involved in Directed Skill Acquisition.* (Supported by the U.S. Air Force, Office of Scientific Research (AFSC) under contract F49620-C-0063 with the University of California) Berkeley, February, 1980. (Unpublished study).

3 Benner, Patricia, and Benner, R.V. *The New Nurse's Work Entry: A Troubled Sponsorship*. New York, Tiresias Press, 1979.

4 Benner, P., and others. *From Novice to Expert: A community View of Preparing for and Rewarding Excellence in Clinical Nursing Practice.* (AMICAE Project Grant #7 D20NU 29104) San Francisco, University of San Francisco, 1981. (Unpublished study).

5 Dreyfus, Stuart. *Formal Models vs. Human Situational Understanding: Inherent Limitations on the Modeling of Business Expertise.* (Supported by the U.S. Air Force, Office of Scientific Research (AFSC), under contract F49620-79-C-006x with the University of California) Berkeley, Feb. 1981, p.19. (Unpublished report. Copies, for $5 each to cover the cost of duplicating and mailing, are available from Stuart Dreyfus, Director of Operations Research Center, Univ. of Calif., Berkeley, Calif. 94720).

6 Gadamer, H.G. *Truth and Method.* London, Sheet and Ward, 1970.

7 Benner, Patricia and Wrubel, Judith. Clinical knowledge development: a neglected staff development and clinical function. (Submitted for publication to *Nurse Educ* 1981).

9

THE CONCEPT OF COMPETENCE

GILBERT JESSUP

G. Jessup, 'The concept of competence', *Outcomes: NVQs and the Emerging Model of Education and Training*, Falmer Press, London, 1991, pp.25–30.

If statements of competence are to determine the standards for qualifications and, as a result the form and content of the future provision of vocational education and training, it is of considerable significance how we view competence. There has been a continuing debate on this issue as the programme has expanded.[1] As described earlier, a shift has taken place from the determination of competence primarily by those in the educational sector (further education and awarding bodies) to those in the industrial sector (employers and employees), through the network of industry bodies. Many educationalists fear that this will result in a narrow concept of competence, based upon the immediate job requirements. In truth, this trend has been apparent in some industries, where the statements of competence set reflect the current, often narrow jobs which people perform. Considerable effort is now being exerted by NCVQ, the Training Agency, the CBI and others advising industry lead bodies, to broaden this concept of competence.

Before we look at what is meant by 'breadth', we should perhaps clarify that the term 'competent', as used here, does not refer to a lowish or minimum level of performance. On the contrary, it refers to the standard required successfully to perform an activity or function. In manufacturing this would relate to quality control standards required to produce a satisfactory product. In the performance of a service, it means meeting the requirements of a customer or client. In most employment areas, unlike education, there is a recognized standard of performance related to the concept of 'quality'. Being competent means performing to professional or occupational standards. In most professional and occupational areas there is no scope for 'second best' standards.

The requirement for 'breadth'

The origins of the current NVQ programme lie in the New Training Initiative (MSC, 1981), in which the concept of 'new kinds of standards' was closely related to the need for a flexible and adaptable workforce. The thrust of NTI was the need to prepare people for careers which would be characterised by changing technology and job structures, and for much greater occupational mobility than employees had experienced in the past. This aspect of education and training has been emphasised more recently in the CBI publication *'Towards a Skills Revolution'*. The CBI are seeking a broad foundation of competence in all young people, though not only young people, upon which individuals can build throughout their life.[2]

While those who take a national perspective stress the need for breadth in both general education and training, many employers train for more specific and immediate needs. This potential conflict of interest becomes a particular problem if employers are expected both to specify the standards required for vocational education and training, and to play a major role in providing the related training. Many employers do of course take a longer term view of human resource development and encourage their employees to broaden their competence beyond the immediate requirements of their current jobs, but this is not yet a generally accepted practice.

National and occupational standards

Those employers and employees representing their occupational sector in industry lead bodies are being encouraged to take a national perspective and set broad based standards. Breadth is implicit in the concept of 'national' standards. A national standard for an employment function implies that it is generally applicable to all companies and contexts where that function is performed. It would thus normally be more general and broader than the expression of a standard which applied only to a particular company. The concept of occupational or professional competence has similar connotations. A person who is described as competent in an occupation or profession is considered to have a repertoire of skills, knowledge and understanding which he or she can apply in a range of contexts and organisations. To say that a person is competent in a 'job', on the other hand, may mean that their competence is limited to a particular role in a particular company.

The distinction between job competence or occupational/professional competence will depend on how broad or narrow the job is, and the variation in practice that occurs in different jobs in the same occupational category. The next chapter shows how the variation between jobs is taken into account in writing statements of competence.

Competence in a role

Training for occupations or professions has tended to concentrate upon the technical requirements of jobs, the skills and tasks that need to be performed, while often neglecting the wider aspects of performance required to fulfil a work role. Thus engineers may be competent at solving engineering problems but poor at communicating their solutions to others. Secretaries may be efficient at typing, shorthand, filing, but not good at judging the priorities between these activities in meeting the broader objectives of their work role. Doctors may be able to diagnose the condition of patients, and know what treatments to prescribe, but lack skills in dealing with patients, or colleagues and staff.

Anyone who has worked knows that there is far more to being successful in a job than carrying out the basic tasks competently. Jobs are seldom performed in isolation. One has to work with other people, often solving problems or completing tasks as members of a team. One has to relate to people at a variety of levels on social and organizational matters, in addition to the performance of the functions specific to one's occupation. One also has to manage one's own job and cope with unexpected events which fall outside the practices and procedures of routine activities. To survive and flourish in organizations, particularly at senior levels, one needs to be politically sensitive and astute. It is often these less tangible aspects of competence rather than their technical skills, that distinguish between the successful and less successful employees.

The emphasis on this broader concept of role competence leads to increased demands for demonstrations of competence in the workplace in order to collect valid evidence for assessment. It also points to the need for work experience to be a component of most training which leads to occupational competence. In addition, the experience of work will need to be structured and varied to ensure sufficient coverage of the major components of competence described above. The alternative is far more extensive and imaginative practical work, project work or other forms of simulation, in colleges and training centres.

These aspects of competence which go beyond the technical have been classified, under the headings 'task management', 'contingency management' and 'role/environment skills'. This has been described as the 'job competence model.'[3] All are considered necessary to be fully competent in an occupation or profession. How these are built into statements of competence still presents something of a challenge, but there are some good examples now emerging, as the next chapter illustrates.

Functional analysis

The analysis and specification of competence according to functions, which is now advocated, provides a broader conception of competence than earlier task analysis approaches. The concentration on function shifts the focus of competence from tasks and procedures to the purpose and outcome of work activity. These are more likely to endure as technology and work procedures change. There is also less likelihood of neglecting the non-technical aspects of competence, insofar as these are required to achieve a successful outcome.

Knowledge

The 'breadth' of competence is intimately tied up with the question of knowledge and understanding, which has been central to the debate surrounding NVQs in educational circles. The new emphasis placed on competence and performance is often believed to be at the expense of knowledge and understanding. These issues are considered more fully in relation to assessment in later chapters, but an understanding of the principles underlying competent performance (ie why one does it that way) and a knowledge of how performance will need to vary to meet different circumstances, would seem to be minimum requirements of NVQs at any level. It is recognized that these simple requirements result in a large body of knowledge at professional levels.

The requirements for knowledge and understanding which underpin competence in NVQs should be derived afresh from the statement of competence. This provides a clear rationale for what needs to be acquired, which has often been lacking in previous systems. It is not clear whether this will result in more or less demands for knowledge, but whatever is required will be directly relevant to performance in an occupational or professional area. (For further discussion of knowledge and its assessment, see chapters 7 and 18).

Knowledge is an assessment issue in NVQs and the requirements are not spelled out directly in the statement of competence (see chapters 7 and 18).

Preparation for change

Closely related to the issue of developing broadly competent people for current roles, is the need to prepare people for change in the future. How can we not only train people for the jobs they have to do now, but also give them a basis of competence to cope with, or acquire quickly, the skills they will need for work they might be performing in two years or five years from now? The approaches adopted to broaden the statement of competence described above are also relevant here. Specifying competence in respect to employment functions and outcomes, is helpful for they are less likely to change than the technology, the methods and procedures for achieving those outcomes.

The emphasis placed upon task management, contingency management and role/environment skills, encourages the development of the 'process' or core skills associated with employment, which are likely to endure and remain relevant as technology and work practices change.

As we have noted assessment in NVQs includes the requirement that candidates know how to apply their skills over the range of contexts. One aspect of this will normally be the assessment of their grasp of the underlying principles which govern the required behaviour. NVQs are thus likely to demand a body of knowledge and understanding which would form a basis for the acquisition of new skills.

A final point on preparing people for the future is that lead bodies setting standards should consider incorporating the more advanced technological practices in the occupational field in their specifications for NVQs, even though these may not yet have been introduced to many people's jobs.

Progression

A further consideration in preparing people for the future, is the extent to which one NVQ can provide a base for progression to another, at the next level in the same and related occupational areas. While doing this, we must be careful not to add extra requirements to an NVQ which might debar people who do not intend to take the next step from gaining a qualification at the level at which they are otherwise competent. The need is to develop competence at the appropriate occupational level in such a way that it both enhances practice at that level and also serves as a basis for progression.

The most effective way to achieve this is to pursue the approaches outlined above. A functional specification of competence, the assessment of knowledge and the underpinning principles, the inclusion of the broader role competences and the identification and enhancement of core skills are all likely to facilitate progression.

Core skills

The problem of breadth is not limited to vocational training. Many consider our general education system, especially post-16, is too specialized and narrow as a preparation for employment and adult life. This was illustrated recently by the education minister, John MacGregor, in his request to the National Curriculum Council and Schools Examinations and Assessment Council to incorporate core skills in A/AS levels:

> There is a second issue, which covers a number of points raised by the Council about the 'vocational' dimension. I believe that whether they go into employment direct or via higher education, all students need to be equipped to take their place in a modern economy, as well as to be competent in every way to function in adult life generally. Specialism at A level, and the maintenance of rigorous standards, is vitally important. But it must not, and need not, be at the expense of developing the broader skills, knowledge and understanding which will be needed in the twenty-first century. (MacGregor, 1989).

The issue of broadening A/AS levels, and NVQs, through the incorporation of core skills is considered in chapter 11. An approach to broaden both general education and training now underway is to identify and enhance the 'core' skills which underpin competent performance. By core skills, people normally refer to problem solving, communication, numeracy, personal effectiveness, and so on, those components of competence which are common to most activity, in employment or outside. (These components have also been referred to as generic competences, general competences, process skills and common learning outcomes in the recent debate).

Training in core skills is by no means a new idea, but the methods now adopted for stating competence and attainment offer new possibilities in formulating core skill requirements and giving credit for their attainment. This offers the potential for both enhancing education and training and, as core skills are fundamental to both, linking education and training systems. The essential feature of core skills is their potential transferability from one context to another seemingly very different one. The role of core skills in education and training is discussed in some detail in chapter 11.

It is sufficient, here, to recognize that identifying and assessing the core skills inherent in occupational competence provide another means of broadening NVQs and vocational training and making employees more flexible and adaptable.[4]

In summary, the concept of competence upon which NVQs are based is fundamental to future vocational and professional training. As it derives from the needs of employment, both present and future, the debate really centres upon how we perceive those needs. There are those who argue we must take a strategic view, and use the training and qualification system to shape the future. But others are, understandably, concerned with more immediate needs and do not yet share the long term view.

Notes

1 An analysis of various definitions of 'occupational competence' and how they have evolved in contained in 'Insufficient Evidence', the final report of the competency testing project by Lindsay Mitchell and Tommy Cuthbert, SCOTVEC, 1989, (pp.7 to 14 and Appendix 1: What is occupational competence?)

Tuxworth (1989, pp. 10-25) provides an overview of historical development of competence based education and training, mainly in the USA.

See also Oates (1989 pp.187-189) for an observation on developments in the UK.

2 The CBI Task Force Report (1989b, pp.25-28) has been particularly influential in providing an employer view on the need for broad based NVQs. See also summary of CBI recommendations at Appendix B of this book.

3 The Job Competence Model (Mansfield and Mathews, 1985) conceives of competence as four inter-related components:

task skills—the routine and largely technical components of an occupation

contingency management skills—the skills to recognise and deal with irregularities and variances in the immediate working environment

task management skills—the skills to manage a group of tasks and prioritize between them

role/job environment skills—the skills to work with others and cope with environmental factors which are required to fulfil the wider role expectations.

It has been useful in emphasising that competence involves more than the task skills, which have been primarily the concern of training and assessment for qualifications in the past, but it needs further development to become operationalised in the methodology for specifying competence.

It is interesting to note the relationship between task management skills and what Bruner (1966, p. 6) sees as a significant aspect of intellectual development:

> Intellectual development is marked by increasing capacity to deal with several alternatives simultaneously, to tend to several sequences during the same period of time and to allocate time and attention in a manner appropriate to those multiple demands.

NCVQ should also note as a factor in determining NVQ levels.

4 Note also NCVQ (1990e) p. 2:

> The National Council aims to identify and enhance core skills in NVQs in order to ensure breadth in the statement of competence upon which they are based. In particular, it believes that the conscious development of the fundamental core skills will;
>
> — enhance the transferability of competent performance between different context and occupations;
>
> — help employees to respond flexibly to changing skill requirements;
>
> — provide a basis for progression within the NVQ framework.

10

COMPETENCY-BASED TRAINING: SOME DEVELOPMENT AND ASSESSMENT ISSUES FOR POLICY MAKERS

PETER THOMSON

P. Thomson, 'Competency-based training: Some development and assessment issues for policy makers', *TAFE Journal of Research and Development*, vol.6, no.2, 1991, pp.38–45.

Introduction

Many of the criticisms of competency-based education and training seem to be founded in the belief that competency-based programs consist of interminable lists of skills to be mastered by the students or trainees. The critics apparently assume that competency-based programs are the old behavioural objectives programs revisited. The fact is that most people associated with competency-based training believe the behavioural objectives approach has been sufficiently discredited to make it an inappropriate model for their work.

The behaviourists require that all objectives of a program be prescribed and tested. The unfortunate consequence of this has been the breaking down of programs into more and more discrete skills and a consequent trivialisation of the educational or training program which attempts to deliver those skills.

The new word being applied to competency-based programs in the vocational area is holistic. In developing programs, every effort is made to avoid thinking solely in terms of individual skills. A competence usually involves several skills and it is a combination of these skills, each with their own standards and conditions, that is the basis for the present competency-based approach. Having said that, it should be pointed out that some workers in the vocational area could probably have a more holistic approach than they have at present. Everybody needs reminding at some time or another that the whole of a competence is greater than the sum of its parts. Furthermore, competence needs to be defined in a way which takes account of this holistic approach.

Unfortunately, definitions of competence abound. However, when the subject is occupational competence, most definitions make reference to meeting the demands or expectations of the work-place. But this immediately throws up another potential source of confusion because competence is not observed in the work-place, rather it is performance that is observed. Competence must be inferred from performance.

Our vocational training system could have been described as performance-based to avoid this confusion, but the term competency-based has achieved such wide currency that to change it now might cause more trouble than it is worth. Nevertheless, it is a good idea to keep in mind that competency-based standards are in fact performance-based standards.

The following definition of competence is related to work the National Training Board is sponsoring for the establishment of competency-based standards for trainers, in particular for work-place trainers—these are the people whose job it is to train others to perform satisfactorily in the work-place.

A definition of competence

A competent performer is somebody who does something to a satisfactory standard. We have competent tennis players, competent musicians, competent electricians, and so on. But, when the word is used in this way, the competent performance cannot be separated from the circumstances in which it occurs. The competent tennis player in a country club team is unlikely to be seen as competent if, by some unfortunate twist of fate, he or she were playing Boris Becker or Steffi Graf. Simply describing a performance such as playing tennis, playing music or doing electrical work as competent does not tell us enough.

Let us consider for a moment that we are a manager seeking a trainer to train other workers on a one-to-one basis to operate a particular machine in the production line at our factory. If we were told that there was only one applicant, who seemed to be competent, we still need to know more before agreeing to employ that person. For example: can they prepare a training plan, deliver and assess a training program, keep records of trainees and so on? To be more precise, can they, for instance, prepare a training plan which addresses relevant occupational health and safety issues? Can they maintain accurate and legible training records? In other words, to have any meaning, competent performance must be accompanied by a description of the expectations of what needs to happen in the workplace. These descriptions of expectations are referred to as *standards* and without them 'competent performance' has little meaning.

There is a set of routine training skills associated with planning, delivery, assessment and record keeping. So if our applicants can do things like show us training plans they have prepared that address occupational health and safety issues, in a way we find satisfactory; and we can also establish they are able to keep accurate and legible records; then we are starting to produce a statement of competent performance that is understandable. This is because it explains the competence that is being performed (work-place training) in terms of the standards of the routine skills associated with that performance (planning skills, accurate and legible record keeping, etc).

However, a statement about standards of the *routine skills* the trainer performs is not enough. We know being a competent trainer involves other *non-routine* skills. For example, does the applicant have good interpersonal skills and is therefore able to get the message across to the recipients of training?

This routine/non-routine distinction between the skills that make up a competence should not be taken to imply there is a firm demarcation between the two types. Indeed, what is a routine skill for one person can be non-routine for another. Essentially the non-routine skills deal with the more idiosyncratic events and unplanned incidents that occur in the work-place. Interactions between people tend to be unique events that are very difficult to describe objectively. So while interpersonal skills have long been recognised as essential to many jobs, they have traditionally been given little attention by curriculum writers and even less by assessors.

The great value of bringing out the routine/non-routine skill distinction is that it requires us to give consideration to these harder-to-describe skills when developing statements of competence.

Competent performance will therefore be described in terms of the competence to be performed and a set of standards applied to that performance which covers both routine and non-routine skills.

This gives a statement that tells us most of the things we need to know about the competence of our trainer. Some might say this is enough, but in fact there is still one thing missing. We don't know anything about the *conditions* under which the competence can be demonstrated. For example, the applicant might have previously worked as a trainer on a production line which used a form of work practice where workers were part of a team and the jobs rotated between the team members. In addition, the workers enjoyed a clean, airconditioned working environment. However, the job we are offering is in an extremely noisy and dirty factory where job rotation is frowned upon and airconditioning unheard of. These changes to the conditions under which the applicant would be expected to work will almost inevitably affect the standard of performance.

In summary, any statement of competence describes:

- The *skills* that are performed in demonstrating the competence (eg the skills required by a competent trainer);
- The *standards* of performance of those skills in terms of:
  - i) routine skills (eg accuracy and legibility of record keeping);
  - ii) non-routine skills (eg interpersonal skills);
- The *conditions* under which performance occurs (eg work practices, the work environment).

There are other descriptions of occupational competence but generally they cover skills, standards and conditions in one way or another. Although the various definitions are a source of confusion to many people, it is important to note that, in the majority of cases, they mean very much the same thing. Mostly the differences are little more than variations on a theme.

Developing issues

One of the great advantages that the competency-based approach brings to our education and training system is flexibility. This is because it allows the development of a continuum of competence statements from the very basic to the very complex. What is more this can be done in a variety of ways. For example, the number of skills to be performed can be increased or reduced, the standards placed on these skills can be made more lenient or more demanding and the conditions under which performance occurs can be varied as required. This last possibility—the varying of conditions brings to mind the story of the welder applying for a job who had to perform a demonstration weld on a flagpole with the supervisor pulling on a rope to cause the flagpole to swing from side to side. The idea was to simulate the windy conditions that the welders would have to handle if they got the job.

The great beauty of the competency-based approach is that it gives this sort of flexibility. It enables the employers to get people with the skills they need. The challenge, of course, is to get the competency statements written correctly.

When this is done the artificial divide between 'professional' and 'vocational' can be seen to disappear. There are few differences between the elements that go to make up the competence, it is essentially a matter of quantity and complexity.

Professionals typically undergo longer periods of theory training than those working in the more technical or vocational areas. Many professions require evidence of a substantial theoretical knowledge base before an individual can begin to seriously engage in practical work. It is interesting to note that the apprenticeship system (where a number of present-day professions have their roots) has almost the opposite emphasis. The training periods are not all that different, but the technical/vocational areas place more emphasis on practical work and less on the acquisition of theoretical knowledge. It is this difference in emphasis that is the basis for division. As the argument goes, skills, standards and conditions are all right when competencies for electricians and plumbers are discussed but they don't work when it comes to the professional areas like law and economics. This is simply not true.

A consideration of the roles of work-place trainers gives an example of how the increasing complexity of skills, standards and conditions operates in practice. As well as possessing a thorough knowledge of the subject for which he or she is providing training, a competent trainer possesses a mix of skills such as:

- the ability to deal with the training requirements of a range of individuals;
- the ability to solve problems;
- a thorough knowledge of the training process.

Because different training functions require different mixes of these skills there are important ramifications for setting standards and assessing the attainment of standards. Consider, by way of illustration, the following hypothetical example of two trainers in the clothing industry. One trainer trains individuals to operate a single machine while the other trains both individuals and groups to operate a variety of machines.

	INDIVIDUAL TRAINER	GROUP TRAINER
Training role	Single role. Trains novices (individually) to operate a particular make of industrial sewing machine. Training accounts for less than 20% of work time.	Multiple roles. Trains novices (individually and in groups) to operate a range of industrial cutting, sewing and pressing machines. Training is full-time job.
Problem-solving skills	Relate to needs of one person at a time. Relate to operating a particular make of machine.	Relate to both individual and group problems. Relate to operating a range of machines which vary in terms of manufacturer, functions and operating procedures.
Knowledge of training process	Training skills required to deal with individuals only.	Training skills required to deal with both individuals and groups.

The greater complexity of skills, standards and conditions for the group trainer will have a substantial implication for the delivery and assessment of programs to train the different types of trainer.

Assessing that the individual trainer has sufficient knowledge of the training process is more straightforward than in the case of the group trainer. Interactions with groups require more interpersonal (non-routine) skills. The overall competence required of the group trainer is more demanding and multidimensional.

There are also training functions which carry with them more complexity than the job of the group trainer (an example would be the training development officer). Training development officers require skills associated with corporate and strategic planning and sophisticated evaluation skills that take us to the boundary of what constitutes workplace training.

Assessment issues

It can be argued that the most important element of a competency-based system of training is the final decision-making process. That is, the decision as to whether or not competence can be inferred from the performance evidence that has been collected.

The decision to recognise a performance as satisfactory and infer competence is the basis for the success of the system. If these decisions are wrong, the system will almost certainly collapse. It follows therefore that the standards specified when describing the competence must be validly assessed. In other words it is necessary to decide what constitutes valid assessment.

There are some fundamental questions to be answered here because a cornerstone of the competency-based approach is the use of assessment in workplace situations. If somebody can perform satisfactorily in a work situation then do we need any further evidence of their competence? And irrespective of whether assessment is to be done in the workplace, away from it, or some combination of both, decisions on other technical assessment matters are still needed. For example: Do we gain our evidence by assessing products or processes or the knowledge which underpins these? Do we want to assess all three? And how much evidence is needed? For example, if we choose to assess by observing somebody do something, then how many observations must we make to infer competence?

Assessing the knowledge which underpins performance also brings problems. Firstly there is the difficulty of identifying the knowledge itself. It is well known that many experts experience difficulty in explaining their decisions. Experts tend to perform complex tasks in such a routine fashion that skills like problem-solving have become almost an intuitive process.

A possible source of the knowledge content (the underpinning knowledge) would be existing curriculum documents, but it is necessary to be convinced that the knowledge specified in these documents is relevant to present day needs. One of the reasons for going down the competency-based path is the dissatisfaction with many existing curricula.

There is, however, a further problem lurking here and that is the place the assessment of underpinning knowledge is given when we measure prior learning. This brings us back to the relationship between performance and competence. Those who argue for more assessment of knowledge make the point that just because somebody can do something it doesn't mean they understand what they are doing. If this is true, it can have serious consequences. Consider, for example, the competence of dealing with an electrical fire; say in a switchboard that is sparking and smouldering. This competence involves recognising the correct extinguisher, making the extinguisher work and playing the carbon dioxide on the switchboard in a way that ensures maximum penetration. However, what if the person performing the task is operating in a confined and poorly ventilated space? Knowledge about the properties of carbon dioxide in these circumstances is a life or death consideration.

Assessors charged with the responsibility of verifying that a person is competent must be sure (beyond reasonable doubt) that the necessary level of underpinning knowledge accompanies a performance.

When people are applying for the right to practise in a profession or vocation through the assessment of their prior learning, the demands placed on assessors are formidable. In these cases the individuals are not seeking the novice status of a new graduate (with its expectation that learning will continue as they gain experience in the job), but rather are seeking the right of full or expert status. The task is not impossible, but it requires a high level of assessment skills, higher possibly than those associated with the assessment of the normal trainee intake.

Conclusion

There are answers to all of the questions posed in this paper, but sometimes there is more than one answer, and each answer has its advocates. This is a situation that causes problems for the policy makers.

At the present time Australia's policy on competency-based training and assessment is in a formative stage. What is required is a national debate which will analyse the alternative answers to the problems and deliver a strategy for the future.

Bibliography

Foyster, J. (1990). *Getting to grips with competency-based training and assessment*. Adelaide: TAFE National Centre for Research and Development.

Gonczi, A., Hager, P. and Oliver, L. (1990). *Establishing competency-based standards in the professions*. Canberra: Department of Employment, Education and Training. (NOOSR Discussion Paper No 1)

Masters, G.N. and McCurry, D. (1990). *Competency-based assessment in the professions*. Canberra: Department of Employment, Education and Training. (NOOSR Discussion Paper No 2)

Thomson, P. (1989). The school of hard knocks revisited: the assessment of practical skills and experience. *Australian Journal of TAFE Research and Development* 4 (2).

Thomson, P. (1989). *The development of procedures for the assessment of experiential learning*. Canberra: National Office of Overseas Skills Recognition.

Thomson, P. and Pearce, P. (1990). *Testing times: a study of assessment on and off the job*. Adelaide: TAFE National Centre for Research and Development.

Thomson, P. and Foyster, J. (1990). *Competency-based training in TAFE*. Canberra. Department of Employment, Education and Training.

11

STANDARDS AND TRAINING: SOME VIEWS

NTB, DAVID RUMSEY, BOB COOPER AND MARYELLEN HAINES

NTB, 'Standards and their use in training', D. Rumsey, 'From standards to courses', B. Cooper, 'Bridging the gap: Achieving curricula which reflects industry standards', & M. Haines, 'Communication skills: The way to a new future', *NTB Network*, no.9, Apr., 1993, pp.6–11.

Standards and their use in training

NTB

There are clearly many views on the best way to translate standards into curriculum, delivery and assessment. A wide range of approaches is possible in terms of appropriate or permissible practice, as distinct from best practice. It is also likely that 'best practice' will be to a degree contextual.

In considering the approach to adopt, a provider needs to consider some factors about operating in the Competency Based Training (CBT) system.

Competency standards are the starting point of Australia's CBT system. They are industry determined, and enable industry to specifically state the performance which is required of people in the workplace. Training and education providers are then to base their courses and training programs on enabling or assisting individuals to achieve these standards, knowing that this is what industry actually does, and wants people trained for.

Ideally, providers in a Competency Based system would have the freedom to design the curriculum and deliver the training in a variety of ways, provided the training, however delivered, actually enables the participants to achieve the outcomes set out in the relevant competency standards. Innovation and diversity of training delivery is to be encouraged and a standards driven CBT system should facilitate, not constrain this. The market test would be the 'sales' of training courses and programs that providers achieve.

Assessment processes are a little more constrained. Industries may provide considerable guidance on assessment in their standards. Context of use of the competency in workplaces may particularly be indicated in the Range of Variables. The Evidence Guide may indicate contexts for assessment, the relationship between units of competency and required evidence of competency.

Factors to consider

When the requirements of a CBT system and the principles of the National Framework for the Recognition of Training (NFROT) are considered, some points emerge that indicate the range of acceptable practice.

- Where there are national competency standards endorsed by the NTB, accredited courses and recognised training programs need to deliver the outcomes (competencies) set out in those standards.
- Modularisation of training is an extremely effective way of structuring training within the CBT system, but is not a mandatory requirement of it. The requirement for 'multiple entry and exit points' and 'recognition of prior learning' in NFROT can be met, in other ways.
- Self paced learning is also not a mandatory requirement of CBT, but it can be a logical outgrowth in some circumstances as it enables greater efficiency in the use of time and resources.
- A 'checklist' approach of ticking off each unit, element and performance criteria separately, is not an appropriate or acceptable means of providing valid and reliable assessment.
- Assessment must relate to the competencies being delivered, whether they are endorsed standards or other outcomes defined by industry. This does not mean a one to one relationship between elements and performance criteria in competency standards, and what are sometimes called 'assessment criteria', in a training curriculum. It may be appropriate to assess in smaller groupings of parts of units of competency, or to group together a number of units of competency and assess simultaneously.

Clearly there are many factors involved. Within the CBT system projects are underway to more clearly define approaches to developing training from standards. In the end people are going to have to decide on a balance between flexibility in approach with outcome quality assurance being emphasised, and a more confined approach that emphasises quality assurance through process prescription.

From standards to courses

David Rumsey

One of the most important applications of national competency standards is as benchmarks for the development of training courses. Applying the standards to a training requirement, however, requires careful consideration of the context in which the trainees concerned are likely to use the outcome skills and knowledge. Also important is an understanding of the previous knowledge and skills trainees will typically bring to the course.

Dependent on the training application and context, one or more competency units form the basis of a training module. Once the relevant competency units and their associated elements have been identified, the next step is to consider the context(s) in which the learning outcomes are likely to be used. This will most probably be a sub-set of the full range of possible workplace contexts for which the competency standards have been designed.

This may, for example, require clarification of ...

- the likely range of equipment involved;

- the likely service or production processes involved;
- the likely range of product or service standards involved;
- the likely arrangements for workplace organisation and communication;
- the types of information likely to be available in workplaces, such as work procedures, product/service specifications, OHS policies, manufacturer's or supplier's instructions, or relevant statutory regulations.

The cues for the sort of 'context information' required will be contained in the performance criteria, range of variables and evidence guides for the competency units in the standards.

In some instances, this clarification process may require some form of survey of a sample of typical workplaces to establish the current and likely future contexts in which trainees will typically need to apply the skills and knowledge gained through the proposed course.

The other crucial set of information required before course design is commenced is an understanding of the likely background and commencing skills and knowledge of the potential trainees for the course. This includes the likely general education background, work experience (if any), calculation and/or communication skills, and previous on- or off-the-job training or education. This will necessarily colour the need for RPL arrangements and for the flexibility that will need to be built into the course to accommodate the anticipated diversity in the commencing situations of potential trainees.

The proposed learning outcomes of the course should now be drafted in accordance with the ACTRAC guidelines for the design of competency-based training courses.

The learning outcomes will define the skills and knowledge required to be demonstrated by trainees at the completion of the course. They will usually focus around combinations of competency elements and associated evidence guides, where relevant. They should also reflect the likely future contextual situations of the likely trainees. Consideration may need to be given to the extent to which the course is intended to contribute to 'workplace competence'. In some cases, the course will be designed to develop the full extent of workplace competence defined in the standards. This implies the need for real or simulated workplace practice to be incorporated into the course. In other cases, the course will be designed to operate with either concurrent or subsequent suitable opportunities for on-the-job training, practice and/or further development of the skills and knowledge concerned in a workplace setting.

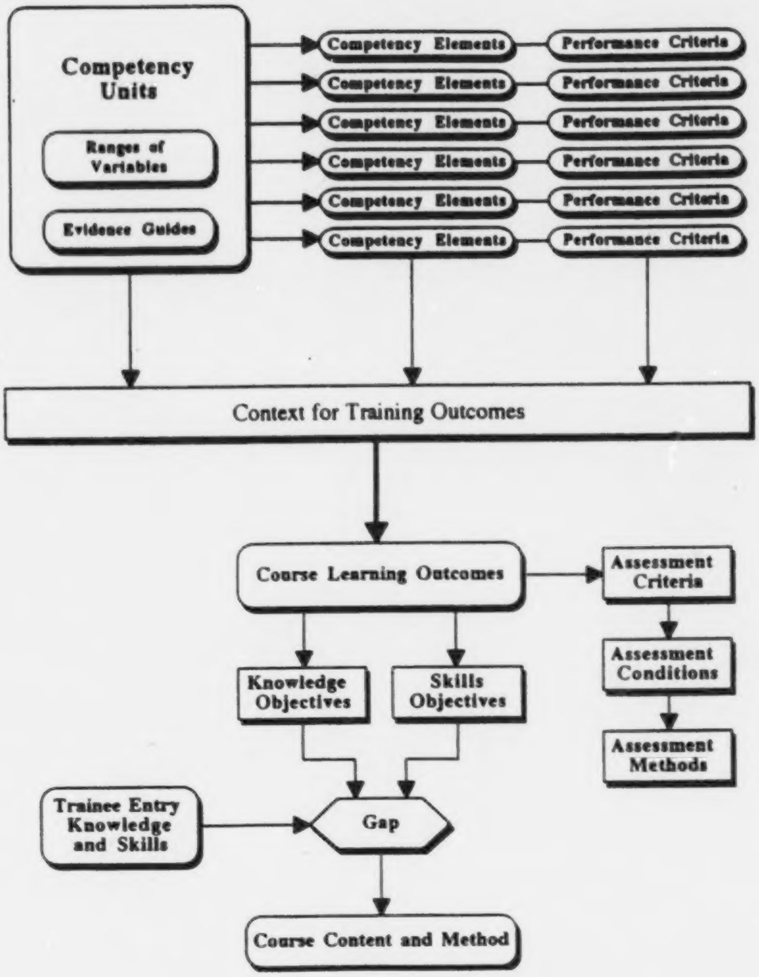
The learning outcomes will need to incorporate the assessment criteria, conditions and methods to be used to determine when the outcomes have been achieved. The assessment criteria and conditions will also need to take account of the detail in the relevant performance criteria and range of variables statements contained in the standards. Of course, they will need to be suitably modified in accordance with the range of likely future contextual situations of the likely trainees.

Once the learning outcomes have been determined they should be compared with the identified commencing situations of potential trainees. The gap between the learning outcomes and the commencing situations of trainees (in terms of needs, access and prior learning) represents the 'content' required for the course. Appropriate learning methods should now be selected and defined along with descriptions of the course content and sequence in accordance with the ACTRAC guidelines. Required learning resources for successful implementation of the course including assessment resources and instructions should also be described.

The learning outcomes of the modules(s), and the overall course, will provide information on the type of credential or educational award, certificate or statement which should be granted upon successful completion of the course. The criteria for consideration of the appropriate award should be consistent with the accreditation guidelines of the relevant State/Territory accrediting authority and the principles of the National Framework for the Recognition of Training.

A flow diagram illustrating the suggested approach is shown in Figure 1.

Figure 1 The flow model for course development


Competency Units
Ranges of Variables
Evidence Guides
Competency Elements
Performance Criteria
Competency Elements
Performance Criteria
Competency Elements
Performance Criteria
Competency Elements
Performance Criteria
Competency Elements
Performance Criteria
Competency Elements
Performance Criteria
Context for Training Outcomes
Course Learning Outcomes
Assessment Criteria
Assessment Conditions
Assessment Methods
Knowledge Objectives
Skills Objectives
Trainee Entry Knowledge and Skills
Gap
Course Content and Method

Bridging the gap: achieving curricula which reflects industry standards

Bob Cooper

The link between endorsed national competency standards and their use by providers sounds simple enough but how do we ensure that industry's intent, as expressed in the standards, is satisfied in the curricula? How do we ensure that the National Training Reform Agenda is not a hoax or facade—an exercise to placate industry but to continue to permit curricula to reflect the wishes of the training providers?

How, in reality, do we give life to the industry requirement as expressed in their standards?

The answer is tied up in two words—'direction' and 'assessment'.

Industry standards should provide unambiguous guidance to curricula developers. It should be clear from the standards just what is required in terms of performance, what underpinning knowledge and skills are essential and what other factors related to contextual settings will impact on performance.

The NTB's Second Edition of its *Policy and Guidelines* has created the environment in which industry can provide an adequate and appropriate level of direction to curricula developers. In addition to the standards format of units, elements, performance criteria and ranges of variables, the NTB's policy now explicitly permits the inclusion of an evidence component which can be used to define the lower and upper levels of underpinning knowledge and skills.

The 'evidence' component, if sensibly used, provides a clear bridge or linkage between the standards and the content of supporting or enabling programs.

The second strategy for ensuring curricula meets industry standards is related to 'assessment'. Competency can only be assured by assessment in the workplace (or simulated workplace). One may absorb learning and practice or rehearse the skills required in a competency but, the real test is the application and satisfaction of the competency in a realistic work role.

To this end, curricula should be focussed on the outputs which a person must achieve in the workplace. This focus, which I term the Workplace Assessment Target, should be established by the industry or the enterprise. In many situations it is desirable that the industry provide the parameters within which assessment should fall and the enterprise then provides the detail.

The Workplace Assessment Target is identified by analysing each unit of competency and determining the basis on which a workplace assessor will be able to judge or infer competence.

Once these targets are identified they can be used as a focus or reference for the job development of integrated curricula which should address the on- and off-the-job learning outcomes. Depending on the particular situation, these learning outcomes can then build to either integrated or site/institution specific modules.

Developing effective Competency-Based Curricula is not simply a matter of changing a few labels. The overall object of the curricula should be focussed on competency, i.e. required workplace outcomes. Having said that, the importance of acquiring the essential underpinning knowledge and skills should not be overlooked or down played. And, finally, the term competency-based refers to the totality of the system—we should acknowledge that within the system there may well be components, in particular knowledge, which cannot and should not be artificially forced into competency terms.

Many people involved in curricula development (at least those I have spoken to) are genuinely concerned to ensure that their curricula satisfies the competency standards. The major difficulties being experienced are that standards, in many cases, do not provide sufficient guidance and direction in terms of underpinning knowledge, skills and assessment or focus. These problems are understandable given the evolving nature of the competency processes.

However, the policies, strategies and tools are now available to ensure that curricula does satisfy industry standards, that curricula covers the integrated on- and off-the-job requirement and that it focuses on the requirements beyond the classroom. It is now a matter of industry and the curricula writers working together to achieve these goals.

Communication skills: the way to a new future

Maryellen Haines

Because of the constant changes to the restructured Australian workforce, greater emphasis is now placed on effective communication skills and efficient and satisfying participation in the workforce. The community need these communication skills in order to access education and training, to enable them gain entry into, and have mobility within and across, occupations.

In 1989 the then ACT Institute of TAFE, now the Canberra Institute of Technology, won the management of a project to develop national communication skills modules. The TAFE system recognised the need to change the way communication skills were delivered in industry and within TAFE.

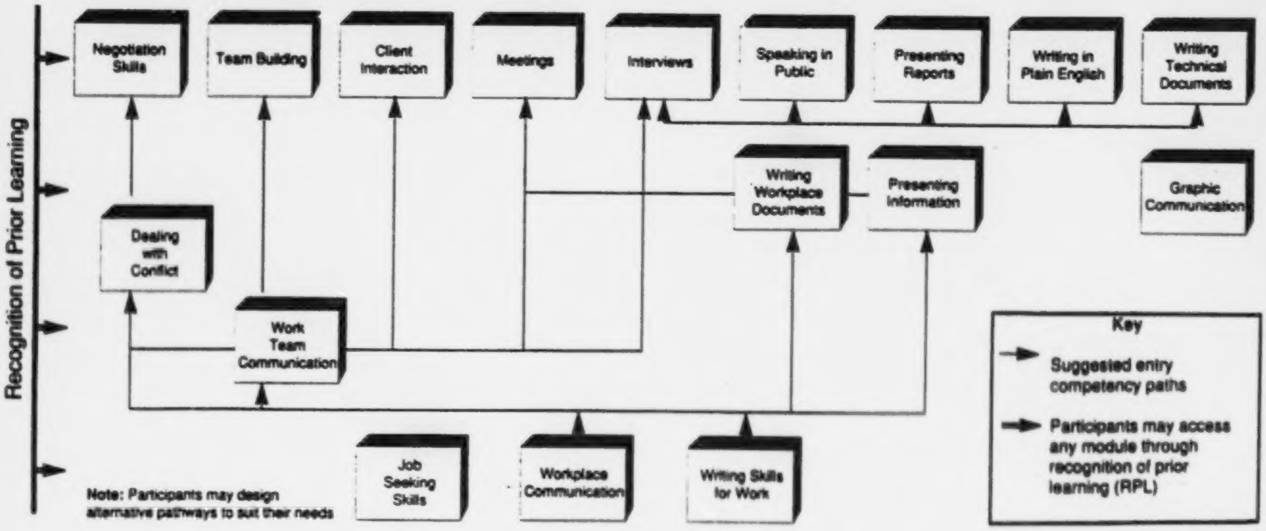
The National Communication Skills Project (NCSP) was funded by the Australia Committee for Training Curriculum (ACTRAC) and Department of Education, Employment and Training (DEET) for two years to develop *generic competency-based communication modules* which could be used across all industries and within TAFE.

The national project team comprised a national co-ordinator from the ACT Institute of TAFE, a representative from each State, DEET and ACTRAC. Each State representative established and worked through their State team.

Consultation

The NCSP modules have been developed in consultation with various industries, businesses, unions and TAFE. The data was collected from skills audits, skills analysis, Awards, Dacuum sessions and discussions with State ITCs and ITBs and where available, existing standards. The project also consulted with other national ACTRAC funded projects as well as the National Training Board. From this consultation the modules have been developed to provide practical application of communication skills in the workplace.

National communication modules


Recognition of Prior Learning
Negotiation Skills
Team Building
Client Interaction
Meetings
Interviews
Speaking in Public
Presenting Reports
Writing in Plain English
Writing Technical Documents
Writing Workplace Documents
Presenting Information
Graphic Communication
Dealing with Conflict
Work Team Communication
Job Seeking Skills
Workplace Communication
Writing Skills for Work
Note: Participants may design alternative pathways to suit their needs
Key
Suggested entry competency paths
Participants may access any module through recognition of prior learning (RPL)

The NCSP recognised that communication skills:

- are central to learning new skills/competencies for the restructured workforce
- are a basis for access and equity in award restructuring
- should enable workers to move within and across industries
- should be able to be delivered in the workplace by industry trainers, TAFE teachers and others
- should be relevant to the particular industry through contextualisation.

Communication as defined by the team

For the purposes of the project the national team developed the following definition of communication.

> Communication is an interactive process which enables people to function effectively in the workforce by:
> - establishing and maintaining effective relationships in the workplace
> - obtaining information, direction, and advice and informing, directing and advising others
> - organising and analysing information
> - participating effectively in groups.

These communication skills are generic; however, the application of these skills is industry specific.

Issues

During the development of these modules the team took into account the following issues:

- a flexible approach to delivery in order to meet industry, business and TAFE needs. This has meant that a modular approach has been adopted so that industry, private providers and TAFE will be able to deliver the modules when and where it best suits their's and their clients' needs

- the integrity of the discipline—communication
- a holistic approach to the delivery of these skills so that learning is not fragmented. It is the workplace application of these generic communication skills that leads to the relevance of the skills and because the application is industry specific, learning is reinforced
- an awareness of literacy and English as a second language across all occupational levels. The NCSP team is aware of the current issues regarding literacy and have sought not to isolate attention to literacy issues, but rather to address these in the actual development and application of the modules. This in turn reinforces an holistic approach to learning.
- an awareness of the many national changing trends and issues in education and consultation with the groups involved in these processes, for example the Mayer Committee.

These modules are developed so that skills development takes place not only between learning outcomes within a module but also between modules. This helps to ensure hierarchical skills development and avoid fragmentation.

What modules have been developed?

Negotiation Skills
Dealing with Conflict
Team Building
Work Team Communication
Client Interaction
Writing Workplace Documents
Meetings
Presenting Information
Interviews
Graphic Communication
Speaking in Public
Job Seeking Skills
Presenting Reports
Workplace Communication
Writing in Plain English
Writing Skills for Work
Writing Technical Documents

What is a module?

A module is a curriculum framework which indicates the purpose, entry competencies, recognition of prior learning, nominal duration, assessment, learning outcomes, content and principles of delivery. It also includes performance criteria based on information gained from consultation with employers, employees, union groups and educationalists.

The module is designed to encourage flexibility of delivery, content and assessment instruments. Each module has a section called Supporting Documentation. This section provides background information to help with delivery and suggested assessment methods, including a variety of occupational scenarios.

Response to the NSCP modules

The modules have received a positive response both nationally and overseas. This response has come from a variety of sources in the education and training community, employers, unions and industry training bodies.

The wide acceptance of the modules indicates that generic communication competencies which can be given specific application are meeting people's needs.

The NCSP competencies provide not only a strong grounding in communication skills which are applicable across occupations but because of their generic nature will also be transferable and equip participants with life skills.

The National Training Board, along with the Deveson, Finn, Mayer and Carmichael Report and others, have indicated that communication skills are vital to all sections of the workforce. The NCSP is about making these skills available to these in schools and those in the workforce who have not had a chance to improve and upgrade their skills as well as those who seek advancement through further training within their vocational area. These skills will be transferable across industries because of the generic nature of communication and if provided by private providers, and TAFE courses the competencies will be recognised across Australia. Already many sectors within industry are implementing the modules through their training programs. TAFE is already placing modules within its national and state course structures and other national groups are looking to utilise these modules according to their own requirements.

SECTION 4

COMPETENCY-BASED TRAINING AND REFORM

12

A STATEWIDE SYSTEM FOR COMPETENCY-BASED INSTRUCTION

WILLIAM E. BLANK

W.E. Blank, 'A statewide system for competency-based instruction', *Journal of Industrial Teacher Education*, vol.24, no.4, 1987, pp.36–46.

Rather than fade away as some critics claimed it would, the competency-based approach to instruction is not only still with us but is thriving. Long a part of the training process in business, industry, and the military, 'competency-based' and other behavioral approaches to delivering instruction are now widely used throughout vocational education in the United States. Many states are actively exploring competency-based instruction (CBI) as an alternate delivery system for improving both the efficiency and effectiveness of vocational education at the local level. Implementing any educational innovation on a statewide basis is a formidable task. Installing and operating an alternate delivery system such as CBI that calls for a fundamentally different approach to curriculum, methods, media, facilities, testing and staff development is a major challenge indeed. This article examines the rationale for and the major components of a statewide competency-based instruction system.

The competency-based approach

The concept of 'competency-based' education or training means different things to different people. Although many definitions of CBI are offered by vocational educators, most focus on three or four essential components. An occupational training program that is competency-based (Blank, 1982).

1. Is based on job validated, concisely stated outcomes (tasks, competencies, etc.) that clearly indicate to all concerned exactly what the student will be able to *do* upon successful completion of training.
2. Delivers instruction to the trainee in an appropriate manner that, within the limits of practicality, allows the trainee to speed up, slow down, and repeat instruction in each unit of learning as needed to learn efficiently (most often accomplished by using a careful mix of learning packages, standard resources such as books, carefully selected or developed media, the instructor and other students).
3. Wherever possible, both *requires* and *helps* the student to reach a high level of proficiency in one unit of learning (task, competency, etc.),

typically 90%-100% mastery, before being forced or allowed to proceed to the next unit.

4 Evaluates students on their ability to perform stated outcomes; the shift is toward performance testing and away from knowledge testing.

While certainly not all-inclusive or universally recognized, this four component definition of CBI seems to include most of the essential characteristics usually associated with the competency-based approach. A statewide CBI system would require decision makers to formulate an official definition of what makes a vocational program 'competency-based'. Missouri's official definition is 'occupational programs in which required behavior (competencies) and performance standards are specified in advance of instruction' (Missouri Department of Elementary and Secondary Education, 1984, p.4). This definition incorporates components one and four mentioned earlier. Florida's definition is 'instruction for employment that is based on current job tasks, which are made known to each student before instruction and which, after appropriate instruction is provided, are to be performed by the student under prespecified conditions and according to prespecified standards' (Florida Department of Education, 1983). This definition mentions components number one, two, and four while omitting number three. A definition offered by the Arizona Department of Education (1984) is 'an approach to an instructional system which emphasizes the student developing and demonstrating specified (competencies) as measured by performance tests.'

The trouble with all of these state definitions is that they fail to address directly component number three listed earlier—mastery. Theorectically, a training program based on (a) job competencies, (b) sound instruction, (c) a required mastery level of only 50% proficiency for each competency, and (d) the use of performance tests would qualify as a true 'competency-based' program in Missouri, Florida, or Arizona and, no doubt, in many other states. The point is that any statewide CBI system should go right to the heart of the problem that CBI is supposed to be addressing, namely, how *well* students are to learn.

Statewide educational innovations

Bringing about significant, long-lasting change in a statewide system of education is extremely difficult. Schools are notoriously resistant to change. Also, the current state of the art in bringing about or even documenting large-scale change is lacking. Recent research suggests that the usual 'prepackaged' approaches to the diffusion of educational innovations may be successful in promoting adoption but are not sufficient for bringing about full implementation or institutionalization (Berman & McLaughlin, 1978).

Seidman (1982) warns against being too optimistic about the potential of large-scale school reform. What is faulty, he says, is the assumption that 'rewards and sanctions—applied by educational bureaucrats according to the results of program evaluations—are assumed to pressure schools into changing their practices' (p.4). Thurnbull (1984) describes two of the major barriers to implementing statewide systems of instruction like CBI: (a) concurrence of local decision makers, all of whom do not support the innovation, and (b) overlapping legal and advisory authorities.

The literature suggests several factors critical for successful implementation of a statewide system of competency-based instruction:

1 Extensive face-to-face explanation, observation, and training (House, 1974; Moore, 1977; Scanlon, 1973).

2 Broad based support (Berman & McLaughlin, 1978; House, 1974).

3 Widespread implementation in a variety of settings (Brickell, 1964; Scanlon, 1973).

4 Communication of innovations between users and developer (Fullan & Pomfret, 1977; Hall, 1979; Herlig, 1977).

5 Adaptation (Berman & McLaughlin, 1978; Fullan & Pomfret, 1977; Hall, 1979).

6 Enough time (Fullan & Pomfret, 1977; Organization for Economic Cooperation and Development, 1973).

7 Organizational climate (leadership, participation in decision-making, and a problem solving capacity) (Foster, 1979; Miles, 1965).

8 Continuous help to teachers during implementation (Berman & McLaughlin, 1978; Brickell, 1964; Hall, 1979).

9 Diffusion facilitated by a person or team functioning as a linking agent (Foster, 1979; Havelock, 1975; Piele, 1975; Scanlon, 1973; Stank, 1978).

10 Rewards (Fullan & Pomfret, 1977; House, 1974; Piele, 1975).

Rogers and Shoemaker (1971) and Darkenwald (1974) offer characteristics of successful innovations:

1 Replicable.

2 Modifiable—can be adapted to the local situation.

3 Triable—on a limited basis.

4 Divisible—adopters can use major potions of the innovation.

5 Complexity—the less complex the innovation, the easier it is to communicate about it.

6 Cost—the lower the cost, the greater the chances of success.

7 Relative advantage—potential benefits of the innovation should outweigh the difficulties of implementation.

Advantages of statewide implementation

Vocational educators have attempted to install competency-based systems of instruction at all levels, including regional, state, school district, school or institution, department, program area, and the individual instructor. CBI implementation at each of these levels has its own set of challenges, advantages, pitfalls, and potential rewards. Although much more difficult to bring about, an alternate delivery systems on a statewide basis has several important advantages over smaller scale efforts.

The weight of law

In most states, the state legislature takes the initiative in instituting major school reform. State legislatures, state school boards, and state boards of vocational education make minor, moderate, and sometimes far-reaching changes in laws, policies, rules, and regulations. Usually, only at the state level do changes carry the weight of being the law. Examples of statewide change initiatives include Tennessee's career ladder/merit pay system and Arizona's state mandated implementation of competency-based vocational education. The mandate of state law simply cannot be ignored by districts and schools.

Critical mass

A second factor that makes statewide change efforts so potentially effective is the 'critical mass' involved. When implementation of competency-based instruction or other educational innovations occurs at the state level, the effort can reap benefits of the ideas and expertise of hundreds of leaders and decision makers, the buying power of an entire state, the involvement of all educational levels, and other economies of scale resulting from sheer size.

The power of the dollar

Financial influence in implementing any statewide system of instruction must be considered a major factor. Most decisions regarding public school finance and the distribution of federal vocational funds are made at the state level.

Nelson and Hess (1985) point out the fallacy of promoting or, even worse, mandating statewide educational innovation without adequate funding. After analyzing all the proposed reforms for Illinios for 1985, the authors concluded that it would cost at least $732 million to implement them.

The necessary infrastructure

Another factor that gives CBI implementation at the state level such a high potential for success is the existence of a functioning infrastructure that reaches from the state house right down to the one room school house. This infrastructure involves funding rules, teacher certification policies, inservice vehicles, statewide communication network, federal funding priorities, and a whole host of policies, bureaus, procedures, and people who collectively make up 'the system.'

Components of a statewide CBI system

While each state might conceptualize, design, and develop its CBI system somewhat differently, there will probably be much more commonality among the major components. These major system components may include the following.

Commitment of state leadership

Without the vocal, documented, and clear commitment of state leaders to the CBI concept, a true statewide system is virtually impossible. Key state leaders include the governor, key state legislators, the state's chief public school official, the head of the vocational education office within the state department, and the state's professional organizations.

Laws, policies, and regulations

Legislative mandate can be a powerful factor although it can also create resentment and resistance at the local level. No doubt, appropriate legislation, polices and rules can help get the ball started and keep it rolling. An example of state mandate is Virginia's: 'By June 30, 1982 each school division shall have implemented CBI in approved vocational education programs based on V-TECS and IDECC catalogs' (Hillison & Cunningham, 1984).

Vocational program structure

One element that seems to have a great deal of impact on both the efficiency and effectiveness of a statewide CBI system is the basic program structure for vocational education programs within the state. Program characteristics which seem to have a *negative* influence on state CBI efforts include these:

1. A heavy emphasis on 'courses' rather than programs and competencies.
2. Heavy reliance on arbitrary, historical time frames (1080 hours, 16 week semester, etc).
3. Restricting enrollment dates to once or twice a year.
4. State or local requirements for official course outlines, lesson plans, and other traditional curriculum components rather than competency listings, learning packages, and so forth.
5. Requirements that equate successful program completion to completing the entire program, even though some students master only clusters of competencies within a program and go right to work.

Supportive university system

Although support and assistance from colleges and universities within the state are not necessarily essential to a successful statewide CBI system, they are helpful. Universities can help in these ways:

1 Lending their resources, expertise, and prestige to the CBI movement.
2 Training both preservice and inservice teachers in CBI methods.
3 Conducting CBI research and development activities.
4 Providing critical staff development support at the state and local levels.
5 Awarding certification and degree credit for completion of appropriate CBI activities.

Statewide CBI plan

Probably no component is more critical to a successful CBI system than is a statewide plan. Without it, states seem to plod along, duplicating effort and addressing one crisis after another without much rhyme or reason. A comprehensive, detailed statewide CBI plan might include these:

1 A specific definition of CBI which includes operating characteristics and desirable elements.
2 An overall philosophy or mission statement regarding the state's role in both implementing and operating CBI.

3 A conceptual framework for the organization and delivery of programs at the local level.

4 Means for determining where the state is now in CBI implementation as compared to where it wants to be.

5 Separate provisions within the system for unique elements at the secondary, post-secondary non-degree granting and post-secondary degree granting levels.

6 A detailed program of work including what must be done, who will do it, when it needs to be done, and how much it will cost.

7 A steering group made up of competent, concerned vocational educators knowledgeable about CBI.

8 Provisions for annual updating and revision of the long range plan.

9 Clear delineation of the role of the state department, universities, community colleges, area centres, and school districts.

Staff development

One reason that many states are not successful at implementing or sustaining CBI is the lack of qualified, trained, and experienced vocational educators who can serve in critical roles. Universities can do a good job of equipping newly employed instructors an support personnel with CBI competencies. State departments can provide effective CBI related inservice education for those already in the field, particularly to administrators and supervisors.

Competency identification process

Most states involved in implementing CBI address the identification, validation, and revision of student outcomes in some manner. State involvement in competency specification may be as informal as being a member of the V-TECS consortium and mailing out catalogs to local districts or as formal as having statewide competency identification task forces with the resulting competencies being required for program completion.

Student competency exams

Increasingly, states are looking at requiring program completers to successfully master end-of-program examinations. Some states are exploring the use of written tests while others are focusing on both performance and written tests. Such end-of-program competency tests are not crucial components of a statewide CBI system, but they can enhance it.

Articulation

A well-functioning statewide CBI system will address both vertical and horizontal articulation. A student should be able to complete a prevocational program in the 9th or 10th grade, move on to a vocational program in the 11th and 12th grades, and possibly complete a post-secondary technical program (all within the same occupational field) without unnecessary duplication of instruction. Competencies attained at each level should be documented and subsequently lead to advanced standing or 'testing out' of competencies at the next level. Moreover, a student enrolled in a vocational program who moves across town, into the next county, or across the state should be able to pick up where he or she left off. There should be close agreement of competencies taught in identical programs regardless of their location or the level at which they are taught.

Funding patterns

The way local vocational programs are funded can have a tremendous impact on whether CBI becomes fully implemented statewide. Funding patterns which seem to inhibit wide scale CBI implementation include these:

1 Basing funding strictly on 'body count'; such practices discourage self-pacing and open exit.

2 Requiring students to be enrolled before hiring instructors; in most states, instructors usually cannot be employed until or just prior to the arrival of students. For new or expanded programs this forces instructors to hastily throw the curriculum together and play catch up from then on. If instructors in new or converted programs could be employed for six months to a year before students arrive, much needed program development work could be accomplished.

3 Building separate classrooms and laboratories simply because it has always been done that way. Many state department personnel are unaware of how much they sabotage their own efforts to implement CBI by continuing to follow policies such as facility design.

4 Allowing or requiring the purchase of duplicate tools, equipment, and instruments.

Incentives

A statewide system of competency-based instruction could be enhanced by formal and informal incentives to encourage vocational educators to adopt and operate CBI. Such incentives can be both financial and non-financial and might include these:

1 Providing attractive CBI workshops and staff development activities.

2 Including a course in CBI for state certification.

3 Recognizing outstanding CBI instructors, programs, and schools.

4 Making CBI expertise a requirement for employment in key positions (particularly administrators and supervisors).

5 Providing special funding for programs ready to make the transition to CBI.

6 Allocating travel dollars to support visits to exemplary CBI sites.

Change strategies

Few states involved in statewide CBI implementation efforts have provisions for carefully planned activities to promote change. Meaningful change must be nurtured and approached sensitively. Strategies useful for successful 'change agentry' include these:

1 Carefully identify and address the specific concerns of those involved.

2 Clearly explain the rationale for change.
3 Present data showing why the change is needed and where it has worked successfully.
4 Reward early adopters.
5 Involve instructors and students in the formulation of the CBI system; avoid a top down approach.

Statewide approach to curriculum

Placing high-quality, mediated, self-instructional learning materials into the hands of students appears to be one of the major stumbling blocks to statewide implementation of CBI. Competency lists, trained teachers, and supportive rules and policies are all important; but being able to provide effective learning packages, learning guides, or modules to students is most important. Only when individual students can receive the kind and amount of instruction they need at a pace they need, can the potential learning benefits of CBI be realized. Modularized or packaged instruction has emerged as the most practical means of delivering this kind of instruction. States making the most progress in installing a true statewide system of CBI usually have a statewide approach to developing and disseminating learning packages in support of competency-based instruction.

Support of local administrators

Certainly, a critical factor in any educational change is the support and commitment of local administrative and supervisory personnel. The building administrator is a major determinant in the success of educational innovations.

Instructor commitment

Any CBI statewide system that hopes to be successful will draw upon the ideas of the instructor at key developmental stages. Sufficient instructor input into the design and development of the CBI system and materials is necessary if instructors are expected to eventually 'buy into' the system.

The preceding components are not all of the major elements that might be a part of a state's overall strategy for implementing an alternate delivery system such as CBI. Finch and Horne (1982), for example, suggested the following factors as critical to successful implementation of Virginia's statewide system of career education:

1 Stating concise definitions or standards describing the scope and direction of the program.
2 Developing of a plan of action for implementation.
3 Providing inservice education to the groups involved in implementation.
4 Securing commitment from those in positions of administrative leadership.
5 Establishing a uniform format for development of materials and products.

Summary

The interest being shown in the competency-based approach to vocational education remains strong. It is beginning to establish a track record of satisfactory performance. Implementation efforts are under way at various levels. Although exceedingly difficult because of sheer size, politics, distances, and other factors, statewide efforts to implement CBI enjoy several major advantages. Successful installation of a statewide CBI system throughout a secondary and post-secondary vocational delivery system requires a well-conceived, supported, funded, and executed effort. Teachers must be involved from the outset and at every step along the way. CBI must be financed at a level to insure more than cosmetic changes. Most importantly, a statewide CBI system must be well-designed and developed and educationally sound. A common format and approach to materials and products is essential. One of the more critical aspects that is often omitted is an overall, detailed plan describing where the state wants to be, when it hopes to get there, how it will know if it has arrived, and what must be done to get there.

Many states are looking to CBI as a promising alternate delivery system, not only for individual vocational service areas but also for all vocational program areas. The basic concept has been proven to work. Whether it can be made to work on a statewide basis across the United States is yet to be determined.

References

Arizona Department of Education (1984). *Arizona vocational education competency-based vocational education model.* Phoenix, AZ: Vocational Education Division.

Berman, P., & McLaughlin, M.W. (1978). *Federal programs supporting educational change, Vol.III: Implementing and sustaining innovation.* Santa Monica, CA: Rand Corporation.

Blank, W.E. (1982). *Handbook for developing competency-based training programs.* Englewood Cliffs, NJ: Prentice-Hall.

Brickell, H.M. (1964). State organizational for educational change: A case study and a proposal. In M. Miles (ed.), *Innovation in education.* New York: Columbia University.

Darkenwald, G.G. (1974). *Problems of dissemination and use of innovations in adult basic education: Selected research findings and recommendations.* (Summary of Vol. II of *Planning for innovations in adult basic education. Research Report No. 5).* New York: Columbia University, Center for Adult Education.

Finch, C.R. & Horne, R.A. (1982). A paradigm for implementing competency-based career education. Paper presented at the annual meeting of the American Educational Research Association, New York.

Florida Department of Education (1983). *Individualized competency-based vocational education,* Tallahassee, FL: Division of Adult, Vocational and Community Education.

Foster, G. (1979). *Evaluation studies for the Florida linkage system. Report and findings.* Tallahassee, FL: Department of Education.

Fullan, M., & Pomfret, A. (1977). Research on curriculum and instruction implementation, *Review of Educational Research,* 47(2), 335–97.

Hall, G. (1979). *Procedures for adapting educational innovation. A brief overview.* Austin, TX: The Research and Development Center for Teacher Education.

Havelock, R.G. (1975). *The change agent's guide to innovation in education*. Englewood Cliffs, NJ: Educational Technology Publications.

Herlig, R.K. (1977). Coordinating the state education agency dissemination system. Paper presented at the Second Topical Conference of the National Dissemination Leadership Project, Washington, D.C.

Hillison, J., & Cunningham, D.L. (1984). *Assessment of vocational teacher's concerns about the adoption of competency-based education. Final report*. Blacksburg, VA: Virginia Polytechnic Institute and State University.

House, E.R. (1974). *The politics of educational innovations*. Berkeley, CA: McCutchan.

Miles, M.B. (1965). *Planned changes and organizational health: Change processes in the public schools*. Eugene, OR: Center for Advance Study of Educational Administration.

Missouri Department of Elementary and Secondary Education (1984). *Excellence through instructional management*. Jefferson City, MO: Division of Career and Adult Education.

Moore, D.R. (1977). *Assistance strategies of six groups that facilitate educational change at the school/community level*. Chicago: Center for New Schools.

Nelson, F.H., & Hess, G.A. (1985). *What are we willing to pay for school reform? An analysis of the costs of educational reform in Illinois*. Chicago: Chicago Panel on Public Finances.

Organization for Economic Cooperation and Development (1973). *Case studies of educational innovation: IV. Strategies for innovation in education*. Paris: Center for Educational Research and Innovation.

Piele, K. (1975). *Review and analysis of the role, activities and training of educational linking agents. Final report*. Eugene, OR: University of Oregon.

Rogers, E.M. & Shoemaker, F.F. (1971). *Communication of innovations: A cross-cultural approach*. New York: The Free Press.

Scanlan, R.G. (1973). *Building relationships for the dissemination of innovations*. Philadelphia: Research for Better Schools.

Seidman, W. (1982). Goal ambiguity and organizational decoupling: The failure of rationale program implementation. Paper presented at the annual meeting of the American Educational Research Association, New York.

Stank, P.L. (1978). The researcher: Working with linking agents to bring research to schools. Paper presented at the annual meeting of the American Educational Research Association, Toronto.

Thurnbull, B.J. (1984). States propose, schools dispose: Prospects for state initiatives in quality improvement. *Education and Urban Society, 16*(2), 207-24.

13

DEVELOPING A COHERENT NATIONAL FRAMEWORK OF QUALIFICATIONS

GILBERT JESSUP

G. Jessup, 'Developing a coherent national framework of qualifications', *Educational and Training Technology International*, vol.29, no.3, 1992, pp.189–97.

Summary

The need to significantly raise the education and training levels achieved by young people and throughout the workforce in the United Kingdom is no longer in doubt. Nor is the need to raise the status of vocational education and training which has a central role in the Government's strategy. The alignment of academic and vocational qualifications within a common framework is part of that strategy. At the same time there is recognition of an equally significant need to open up access to all forms of learning in order to encourage greater participation.

The paper argues that qualifications based upon a clear specification of outcomes, as exemplified by National Vocational Qualifications (NVQs), provide a model which has general application to all qualifications. Recent extensions of the NVQ model into General NVQs and core skills are described to illustrate how outcomes can be specified to meet educational objectives as well as those of occupational competence. It is further suggested that the widespread adoption of outcome and unit-based qualifications would not only provide a means of creating a unified system but would also be cost effective, would improve access and flexibility, and encourage learners to take responsibility for their own learning.

Introduction

It is now widely recognised in the UK that there is a pressing need to raise the level of attainment and competence achieved by young people. No longer can education and training beyond the mandatory age of 16 years be the preserve of a minority as it was perceived in the past. All political parties and all major institutions concerned with education, training and employment are committed to the principle that all people in the 16-19 age group should be either in full time education or pursuing systematic training towards qualifications. It is further recognised that we cannot wait for a few decades until the effects of the higher standards achieved by young people filter through to improve the performance of the whole workforce. We must simultaneously address the issue of updating the skills of those currently in employment. And, of course, this cannot be a once only initiative.

We must create the means—the culture—in which continuing learning throughout working life becomes the norm.

The pressure for such change comes primarily from the need to compete with other industrialised countries, most of which have better educated and trained workforces. And our competitors are not standing still. They are gearing up to even higher participation rates in further and higher education. The UK is starting behind and chasing a target which is accelerating away from us.

The scale of the problem that faces us can be seen from the national training targets recently agreed by all the major partners in the UK (CBI, 1991) which are summarised in Figure 1.

Equally important, although less often voiced, is the social or human dimension. It is becoming evident from the success other countries have achieved in recent years that our expectations of what human beings are capable of has been grossly underestimated in past generations. Until recently the view has predominated that only a minority of people were capable of benefiting from further and higher education. This is now seen to be patently untrue. Low expectations have led to low achievement.

Figure 1. National training targets

National education and training targets

Lifetime Learning

1. By 1996, all employees should take part in training or development activities
2. By 1996, 50% of the workforce aiming for NVQs or units towards them
3. By 2000, 50% of the workforce qualified to at least NVQ 111 (or equivalent)
4. By 1996, 50% of medium to larger organisations to be 'Investors in People'

Foundation Learning

1. By 1997, 80% of young people to reach NVQ 11 (or equivalent)
2. Training and education to NVQ 111 (or equivalent) available to all young people who can benefit
3. By 2000, 50% of young people to reach NVQ 111 (or equivalent)
4. Education and training provision to develop self-reliance, flexibility and breadth

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For far too long generation after generation of people have failed to realise their potential, both at work and outside of it. Because of the economic imperative which now faces us we have an opportunity of releasing that potential and providing opportunities for people to lead fuller and more prosperous lives.

The status of vocational education

A particular issue we need to address in the UK if we are to achieve the targets set out above is that of raising the status of vocational education in a society which is still dominated by academic elitism. Fortunately the issue has been identified by the Government and a number of measures are planned to raise the status of vocational education and training. These were set out in the white paper *Education and Training for the 21st Century* (DES, 1991). The intention is to align academic and vocational qualifications at all levels and move towards a more coherent and comprehensible system. Within such a system there should be far greater opportunities for access, progression and transfer between academic and vocational routes. The proposals draw heavily on the work of the National Council for Vocational Qualifications in creating the NVQ framework. The systems we have inherited will not meet the needs of the 21st century, not that they necessarily met the needs of this century very effectively either.

Outcomes: A unifying concept

In the book *Outcomes: NVQs and the emerging model of education and training* (Jessup, 1991), the thesis was put forward that all forms of learning would be more effective and efficient if the learning outcomes sought were clearly articulated in advance. The model presented also assumed that learning and assessment would be based upon such outcomes. The book set out a methodology developed from experience over five years of creating National Vocational Qualifications (NVQs). Somewhat more contentiously, the book went further to propose that the methods would be equally valid in specifying the outcomes of general or academic education. It argued that this would lead not only to more effective education, but also provide a means to align education and training provision.

The specification of the outcomes of learning clarifies for both students and teachers what is required for the award of a qualification and thus programmes of learning leading to such qualifications. Outcomes provide a language to negotiate learning targets and to draw up individual action plans. By doing so they create the opportunity for learners to take responsibility for their own learning, instead of encouraging dependence, which is a consequence of much traditional provision.

It should follow logically that once the outcomes of learning have been stated that assessment is based directly on those outcomes. Because outcomes are itemised, such assessment leads naturally to unit certification, or unit credits, rather than simply whole qualification certification. This in turn promotes modularisation in learning programmes. Unit credits and modular programmes open access to learning and allow flexibility, both vital to promoting continuing learning as a natural part of work and life.

The key building blocks of the system are described in the article by Paul Ellis within this volume (Ellis, 1992) to which the reader is referred. They are also presented in more detail in Jessup (1991).

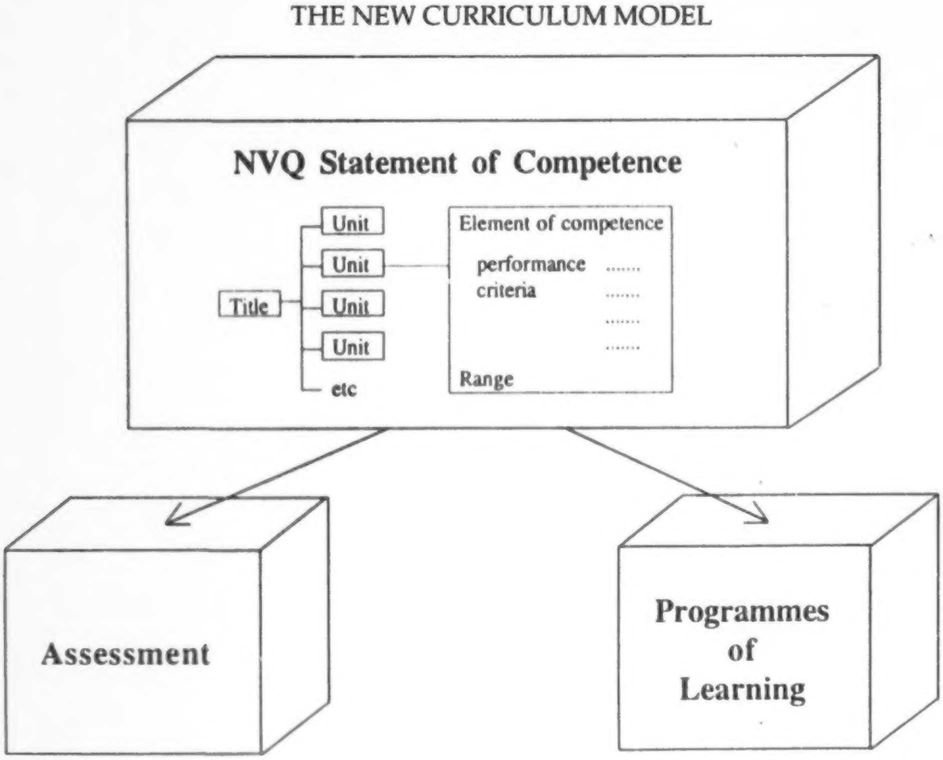
Curriculum model

The implications of specifying the competences, or more generally the outcomes of learning, independently of programmes of learning or assessment procedures, have profound implications for the curriculum model which results. The relationship may be represented in Figure 2.

By specifying the outcomes required separately from learning programmes, students, teachers and curriculum designers are free to select modes of learning which suit them. This might seem the natural and obvious way to approach the problem but it is not what has normally happened in the past.

The starting point has so often been to design a syllabus, programme or training specification based upon a pre-determined mode of learning. The length and context of the learning programme have also been determined, whether in school or college or workplace. The outcomes to be achieved have often been subordinate to the prescribed programme and seldom clearly articulated.

Figure 2. Statement of competence, learning and assessment



Within the new curriculum model, learning can take any form—full-time or part-time programmes, open or distance learning, or through experiential learning in the workplace or elsewhere, or any combination of these. Learning can also take place over different periods of time. Learning can be tailored to meet the needs, the preferred learning style, and circumstances of the individual.

Less obviously, the statement of competence does not dictate the form of assessment that is required, although it may point to the requirement for performance demonstrations, or evidence of knowledge and understanding, or a combination of both. The model which stems naturally from the outcomes approach is that assessment is based upon the accumulation of relevant evidence in order to meet the criteria specified. The evidence may come from everyday experience, work experience, projects and assignments designed to provide opportunities for learning and assessment, as well as from more conventional tests and examinations.

This approach to assessment, along with explicit criteria available to students and assessor alike, removes much of the mystique, artificiality and stress which characterize traditional examination practices. I would also argue it is more valid and more sympathetic to the curriculum objectives we seek.

Once the outcomes and standards have been made explicit, evidence from past achievements also becomes a legitimate form of assessment. NVQs have unleashed the potential for the accreditation of prior learning (APL), which many have been striving for in recent years. Instead of APL being treated as exceptional, it is rapidly becoming a natural part of the mainstream assessment process. A national study in the UK, involving the major vocational awarding bodies, demonstrated the feasibility of APL and some of the consequent issues that now need to be addressed (Jessup, 1990). A major initiative has now been launched by the Government, operating through the new Training and Enterprise Councils, to create the facilities and expertise to open access to assessment through APL.

Unit credits and credit accumulation

Another key feature which stems naturally from the specification of outcomes is the assessment and certification of units, as described above, and not just whole qualifications. Unit certification tends to lead to the design of modular learning programmes. Modules and units provide further means of opening access to learning and qualifications by vastly increasing the flexibility of the system. Thus students or trainees can build up their competence over varying periods of time through credit accumulation. They can also gain credits in different locations.

Units also provide a mechanism for formally recognising those functions which are common to different occupations, and thus facilitate credit transfer between occupations and mobility between jobs. Within the UK we are creating a national system of credit accumulation and transfer based upon unit credits.

Extending the model

The new issue I would like to focus upon in this paper is the potential of the methodology, developed in the context of NVQs, to specify other forms of learning outcomes. Since speculating on this issue last year (Jessup, 1991) we have accumulated detailed experience in two programmes which tested the model. These are described below.

General NVQs

In May 1991, the white paper referred to above (DES, 1991) was published. In it the Government declared its intention of establishing 'parity of esteem' between academic and vocational education. In particular, the National Council for

Vocational Qualifications was given a remit to extend the NVQ framework to include broad-based vocational qualifications which could be delivered through full-time programmes in schools and colleges. The new qualifications were to be called General National Vocational Qualifications (GNVQs). They will complement, and underpin, NVQs. The particular target audience for the new qualifications will be the 16–19 age group, although it was envisaged that they will also be relevant to adults and possibly the 14–16 age group. One objective is to encourage a far higher proportion to stay in full-time education beyond the end of compulsory schooling at age 16.

GNVQs will provide a broad-based vocational education. In addition to acquiring the basic skills and an understanding of the underpinning principles in a vocational area, all students awarded a GNVQ will have achieved a range of core skills. The combination of vocational attainment plus core skills will provide a foundation from which students can progress either to further and higher education or into employment and training via NVQs. GNVQs have been designed to link the academic and vocational systems. In particular, the GNVQ at level 3 is to be aligned to GCE 'A' levels as well as NVQs at level 3.

It is the Government's intention that GNVQs, together with NVQs, will replace other vocational qualifications and become the mainstream national provision for vocational education and training. GNVQs and NVQs will provide a progressive framework for vocational education and training similar to, and aligned with, the framework for academic qualifications of GCSEs, A levels, and first and higher degrees.

During June to September 1991, NCVQ, working closely with the major national education and training agencies and Government departments, developed the criteria for the new qualifications and, simultaneously, the specifications for GNVQs in five broad vocational areas.

Both the criteria and specifications were the subject of a wide scale consultation exercise between October and December 1991. The response indicated overwhelming support for the main proposals put forward and much detailed feedback was received that has helped to shape the form of the qualifications (Harrop, 1992). The revised criteria were accepted by ministers early in 1992, subject to detailed changes in those concerned with assessment and grading.

The form of GNVQs

GNVQs have been modelled on NVQs. They are outcome-based qualifications where the outcomes are specified independently of the learning programme. The outcomes are grouped into units and follow a format of elements, performance criteria and range. The units can be assessed and certificated independently, allowing unit credits, credit accumulation and transfer. An important distinction is that whereas NVQs are based directly upon the functions performed in an occupation or profession, GNVQs address the underpinning skills, knowledge and understanding over a broad area relevant to a range of occupations or professions. This is conveyed by their titles (eg Manufacturing, Business, Health and Social Care), which are far broader than a single occupation or profession. To reflect its distinction, the outcome of a GNVQ is described as a 'statement of achievement' whereas that of the NVQ is a 'statement of competence'.

The methodological issue it raises is whether outcomes which are addressing essentially principles and processes can be formulated in the same manner as those of occupational competence. The form of outcome specification in GNVQs is illustrated in Figure 3 which shows an element taken from GNVQ.

The issue which has been most problematic is that of indicating the level of difficulty, or the depth of understanding required. In most educational programmes, this is conveyed by the examinations set and the way they are marked. In the new model we wish to state the outcomes separately, to allow different forms of assessment. It is recognised that in GNVQs the range specified for an element is of particular significance and can be used to indicate the number of dimensions or aspects of the element statement to be covered. The forms and scale of evidence that should be supplied will also be specified to further indicate the depth of knowledge expected.

As more experience is gained of setting up GNVQ programmes, and exemplar learning materials are devised, the standards required will become more widely understood. It might be added that the problem of communicating the standards required is not peculiar to GNVQs but is common to all learning programmes and qualifications. As referred to above, they are normally only conveyed to students and their teachers by the questions in examinations and, more particularly, the marking regimes adopted. We are thus attempting to address in GNVQs, as in NVQs, an issue which is highly relevant to all qualifications and programmes of learning, but which tends to be largely hidden in traditional examination practice.

Core skills

The second development programme in which considerable progress has been made is in the specification, assessment and certification of core skills. The idea, which is far from new, is that while developing occupational competences, or educational attainments, students are also developing fundamental skills such as communication, problem solving and numeracy. In fact, it might be argued that the primary purpose of education is to develop such skills as they offer the potential for transfer to other pursuits later in life. Employers often place considerable emphasis on the attainment of core skills in recruitment.

Figure 3. A GNVQ element of achievement

A GNVQ ELEMENT

UNIT 1 SOCIAL EQUALITY IN HEALTH AND CARE

1.1 Analyse the ways in which environment and culture influence experience

(a) the key factors which relate to the way that people assimilate values from their social environment are elicited and exemplified

(b) the different experiences of individuals of different backgrounds are compared and contrasted to show key influences

(c) the role of language in representing and reinforcing cultural norms is clearly illustrated

RANGE

Types of Environment: Global, national, organisational, historical Influential factors: Family, class, gender, education, race, culture, religion, age groups, economic status, socio-economic status, poverty, education, housing Language: Sexist, racist, ESL, dialect, accent

EVIDENCE REQUIREMENTS

Records of interviews to also include identification of disadvantage which can occur in the interviews

Oral or written evidence to ensure coverage of criteria and range

---

Because of the central importance of core skills, there have been numerous initiatives to consciously build the development of such skills into vocational and academic education. There are currently major programmes pursuing similar objectives in different parts of the world at the present time (eg in USA, US Department of Labour, 1991; in Australia, Mayer Committee, 1992). In the UK, a national programme was initiated by a previous Education Minister, John MacGregor, in late 1989. This followed a growing interest in the issue in many quarters and particularly the influential report of the Confederation of British Industries—*Towards a Skills Revolution* (CBI, 1989).

A feature of the current initiative is that it was a joint development between those responsible for both academic and vocational qualifications. The idea was to specify core skills that could be developed within both academic subjects or within vocational programmes. The particular focus was in education and training post-16, thus A levels and NVQs at levels 1 to 3 were the relevant qualifications for consideration.

Six core skill areas were initially identified, some on the grounds that they were fundamental to all forms of education and training, and others because it was considered that they were areas in which all young people should acquire certain standards of proficiency. It will not come as a great surprise to learn that the areas we pursued were those indicated in Figure 4.

Agreement was reached between the different agencies on core skill specifications in each of the above six areas and at four levels, which indicate progressive levels of demand. These statements have been taken further by NCVQ and formulated as elements and units like other units within the NVQ system. An example of a core skill element is shown in Figure 5.

Figure 4. Core skills

CORE SKILLS

Problem Solving

Communication

Personal Skills

- taking responsibility for one's own learning
- working with others

Numeracy—Application of number
Information technology
Competence in a modern language

A considerable amount of work has gone into analysing previous core skill frameworks and other theoretical approaches in order to determine the most appropriate forms of progression. This has led to the specification of the four-level framework of core skills. Few previous initiatives have satisfactorily addressed the issue of level.

The distinctive feature of this core skills development is the methodology used to specify them. The NVQ outcomes model, with its detailed specification, lends itself well to defining core skills. In particular, the range of application has been used to indicate the transferability of the skills to different contexts, and to set limits on the level at which the skill is applied. The form of specification as elements and units also means that the core skills can be assessed and certificated in precisely the same manner as other outcomes within the system. It is thus planned that core skill units and core skill credits will become a natural part of the national framework.

Figure 5. Core skill element

CORE SKILL ELEMENT
COMMUNICATION
3.3 Use images to clarify speech or writing

PERFORMANCE CRITERIA
(a) images clearly illustrate the point(s) made
(b) images are used at appropriate times/locations for good effect

RANGE

Images:	as used routinely in the context (eg sketches, photographs, flow charts); are used to clarify simple ideas and relationships; are used to clarify complex ideas and relationships;
Audience:	people who are familiar with the subject matter and in frequent contact with the individual (eg supervisors, colleagues, peers, tutors); people who are familiar with the subject matter but are not in frequent contact with the individual (eg some customers/clients); people who are unfamiliar with some aspects of the subject matter and who are not in frequent contact with the individual (eg some customers/clients, visitors)

The normal mode of developing and assessing core skills will be as an integral part of a vocational or educational programme. Let us take an example of what this would mean in a GNVQ programme. The normal learning mode for such programmes will be through projects and assignments or other active forms of learning. While designing a project to create the learning opportunities for the vocational outcomes, opportunities will also be created to simultaneously achieve the core skill outcomes. Students will be fully conversant with all the outcomes to be achieved, so they will be able to take full advantage of the opportunities provided and also to create their own opportunities.

Thus, for instance, in carrying out a project in marketing, students can demonstrate their interpersonal, problem solving and numerical skills in analysing the data collected, and some information technology skills if the data is analysed through that means. They could demonstrate additional communication skills in presenting the findings in writing, graphically and/or orally. Not all these skills are necessarily vocational requirements to achieve the marketing outcomes, but they could be included to enhance the marketing achievement and simultaneously develop the core skills to an appropriate level.

The core skill units are currently being piloted in a variety of programmes. They will be incorporated as a requirement in the new GNVQs described above, starting in September 1992. When the assessment requirements for the core skill units are better established and evaluated, they will be made available as unit credits for use in any programme.

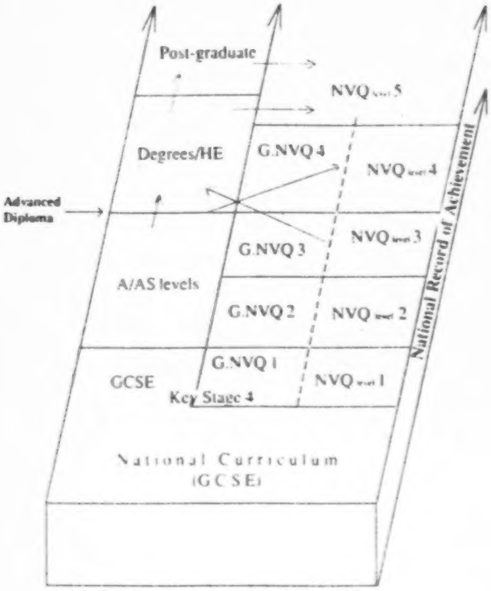
The experience accumulated in the GNVQ and core skill programmes indicates that the methodology upon which NVQs are based is applicable to specifying other types of learning outcomes. It goes a long way to supporting the hypothesis that all forms of learning outcome can be articulated in this manner.

Coherent framework

To return to the initial theme; it is suggested that formulating the outcomes of learning programmes as described, not only opens access and makes learning more effective and efficient, it also provides a means of aligning programmes at different levels and across the education and training provision. The extension of the methodology, first used in competency-based vocational training, to educationally-based outcomes, such as those of GNVQs, and also core skills, has demonstrated its potential to extend into academic qualifications. In addition, the National Curriculum, which is being introduced in the UK for 5–16 education, shares some of the features of the NVQs and GNVQs, with learning being targeted on 'statements of attainment' set at ten levels.

One can envisage a framework of qualifications based upon outcome statements, in a common and universally recognised unit format, which covers both education and training at all levels. The common units within different programmes would be clearly identified and credit transfer would operate automatically throughout the system. Progression in learning, whether vertically to more complex and demanding activities, or laterally to new and different areas, could be rationally determined. There would be a common language of competences and attainments (ie outcomes) which could be refined over time as we find more effective ways of analysing behaviour and learning processes. The proposed framework in the UK is represented in Figure 6.

Figure 6. A framework for education and training


Post-graduate
NVQ level 5
Degrees/HE
G.NVQ 4
NVQ level 4
Advanced Diploma
G.NVQ 3
NVQ level 3
A/AS levels
G.NVQ 2
NVQ level 2
G.NVQ 1
GCSE
NVQ level 1
Key Stage 4
National Curriculum
(GCSE)
National Record of Achievement

There are however limitations to the extent that coherence can be achieved given the different curriculum structures and assessment regimes which currently exist in the UK system. It is suggested that we shall not be able to achieve the fully integrated system we now seek until all forms of learning provision are formulated in a similar manner, namely through the specifications of outcomes. Not only would this provide a coherent system and raise the status of vocational education and training, but many other benefits would accrue.

It would greatly improve access and flexibility to learning programmes. It would expand the range of learning opportunities available and provide scope for them to be individually tailored to suit the needs and circumstances of different people. It would result in a more cost-effective system of education and training, focused upon the real objectives that individuals and society seeks. Perhaps most importantly, it would encourage people to take responsibility for their own learning, both initially and on a continuing basis throughout their careers.

References

Confederation of British Industries (1989), *Towards a Skills Revolution*, CBI, London.

Confederation of British Industries (1991), *World Class Targets*, CBI, London.

Department of Education/Department of Employment/Welsh Office (1991), *Education and Training for the 21st Century, Volume 1*, HMSO, London.

Ellis, P. (1992), Saying it all in standards, *Educational and Training Technology International*, **29**, 3.

Harrop, J. (1992), *Response to the Consultation on General National Vocational Qualifications*, NCVQ Report No. 15, NCVQ, London.

BEST COPY AVAILABLE

Jessup, G. (1990) *Accreditation of Prior Learning in the Context of National Vocational Qualifications*, NCVQ Report No. 7, NCVQ, London.

Jessup, G. (1991), *Outcomes: NVQs and the emerging model of education and training*, Falmer Press, London.

Mayer Committee (1992), *Employment Related Competencies for Post-compulsory Education and Training: A Discussion Paper*, Australian Education Council, Sydney.

US Department of Labour (1991), *What Work Requires of Schools*, US Dept. of Labour, Washington.

14

DEVELOPING NEW COMPETENCIES FOR WORKPLACE EDUCATION

GISELLE MAWER

G. Mawer, 'Developing new competencies for workplace education', *Prospect*, vol.7, no.2, 1992, pp.7–27.

Abstract

Previous articles in *Prospect* (Bean 1990, Cleland 1991) have discussed some of the main reasons behind industry restructuring and the ensuing implications for the Adult Migrant English Program and specifically its English in the Workplace (EWP) programs. The first part of the present article focuses on the rationale for the adoption of a national competency-based approach to vocational standards and training. It then describes some of the key areas in the workplace where oral and written language demands have dramatically altered as a result of restructuring. The ensuing implications for the role of education providers in this changed context are then examined. The article concludes by raising some key issues that need to be addressed if educational providers are to respond appropriately and effectively to the emerging challenges of restructuring.

Competency-based standards and training

1. Industry standards

The establishment of uniform, nationally recognised occupational standards is an integral element of industry restructuring. In developing these standards and designing the subsequent training required, a competency-based approach has been adopted. This represents an attempt to focus on the application of the skills an individual has developed as a result of training rather than the traditional emphasis on 'length of time served' as an indication of skill level.

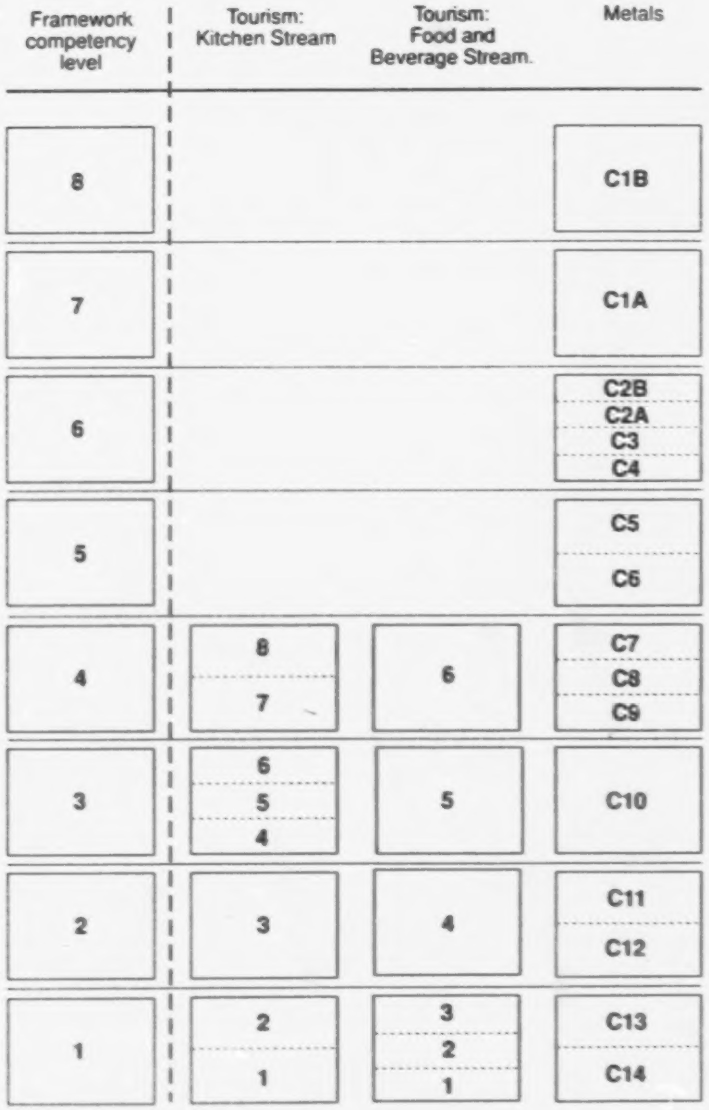
Once the national industry competency standards have been determined by employer, union and training bodies, they need to be endorsed by the National Training Board (NTB). This Board was established by Commonwealth, State and Territory governments to facilitate the development of a consistent national curriculum and a national system of skills recognition.

These national standards will then be benchmarks for:

- Vocational educational and training.

- Curriculum development and accreditation.
- Industry training and recognition.
- Registration and monitoring of providers.
- Assessment of learning and certification of competency.

Figure 1 Australian Standards Framework



Framework competency level	Industry Occupational Classification		
	Tourism: Kitchen Stream	Tourism: Food and Beverage Stream.	Metals
8			C1B
7			C1A
6			C2B C2A C3 C4
5			C5 C6
4	8 7	6	C7 C8 C9
3	6 5 4	5	C10
2	3	4	C11 C12
1	2 1	3 2 1	C13 C14

Note: These are indicative allocations of award career path classifications to the National Training Board's competency levels. The final allocation will be determined by the industrial parties.

(NTB1991:15)

Australian Standards Framework

> The National Training Board has decided to establish a broadly based Australian Standards Framework of eight competency levels which will serve as reference points for the development and recognition of competency standards. Vocational training and qualifications may be compared by using competency levels. (National Training Board, 1991: 11)

This framework will apply to the various restructured industrial awards and will then facilitate the recognition of generic skills across different occupational streams. *Figure I* illustrates the relationship of the Australian Standards Framework to three industrial award classifications.

For example, competency Level 1 is defined as:

> *Level 1. The person has an established work orientation, and the knowledge and skills required to perform routine, predictable, repetitive and proceduralised tasks, involving very limited theoretical knowledge and motor skills, and under close supervision.*
>
> *This level corresponds to a competent operative or service sector worker.*
>
> *Current preparation for employment at this level is generally obtained through job-specific training, mainly in the workplace, which may be certified by appropriate authorities.*

Competency Level 2 is defined as:

> *Level 2. The person has an established work orientation, and the knowledge, skills and demonstrated capacity to perform proceduralised tasks under general supervision and more complex tasks involving the use of theoretical knowledge and motor skills under close supervision.*
>
> *This level corresponds to an advanced operative or service sector worker.*
>
> *Current preparation for employment at this level is generally obtained through job-specific or general training which may be certified by appropriate authorities. (NTB 1991:12.)*

2. Competency-based training

> Competency-based training is a way of approaching vocational training that places primary emphasis on what a person can actually do in the workplace as a result of the training (the outcome) and as such represents a shift away from an emphasis on the processes involved in training (the inputs). It is concerned with training to industry specific standards rather than with an individual's achievement relative to others in a group. (Confederation of Australian Industry, 1991: 1)

This approach is being led by the industrial parties (employers, unions) and has been endorsed by all Commonwealth and State Governmentswho agreed that there should be a nationally consistent approach to vocational education and training. It is envisaged that 50 per cent of the workforce covered by industrial awards will have their competency-based standards established and ratified by 1992 and 90 per cent by the end of 1994.

What is competence?

Earlier definitions of competence such as that developed by Rumsey and Hawke (1988) referred to the possession of the Knowledge, Skills and Attitudes (KSAs) which are required of a worker *entering* a defined level of an occupation. More recent and influential definitions of competency, however, have dispensed with the more nebulous notion of 'attitude' and defined competency as:

> ... the specification of the knowledge and skill and the application of that knowledge and skill within an occupation or industry level to the standard of performance required in employment. (NTB, 1991: 7)
>
> The NTB has adopted a broad concept of competency in that all aspects of work performance, and not only narrow task skills, are included. It encompasses:
>
> - The requirement to perform individual tasks (task skills).
> - The requirement to manage a number of different tasks within the job (task management skills).
> - The requirement to respond to irregularities and breakdowns in routine (contingency management skills).
> - The requirement to deal with the responsibilities and expectations of the work environment (job/role environment skills).
>
> Moreover, the broad concept of competency should be:
>
> - Related to realistic workplace practices.
> - Expressed as an outcome.
> - Understandable to trainers, supervisors and potential employers.
>
> (NTB 1991: 18)

The notion of essential, entry-level, minimal competencies has been replaced with the statement that 'they should be related to realistic workplace practices'

Significantly, the National Training Board also states, elsewhere in the same document, that:

> Standards are to be expressed in a manner which can be understood in the workplace and training environment ... [and that] ... they must not directly or indirectly limit access by individuals on the grounds of age, gender, social or educational background. (NTB, 1991: 10)

In general, competency-based training is characterised by the following features:

- Program content is based directly on the skills required to do a job and performance objectives are written for each competency statement.
- Both on-the-job and off-the-job learning are recognised and credited.
- Learning approach is flexible in order to accommodate the diverse needs and abilities of learners, e.g. time, format, level.
- Assessment is based on clearly defined, criterion-referenced measures that define the knowledge, skills and their application in the workplace, the conditions under which that performance is to be demonstrated and the standard of performance required.

- The assessment procedures are public, widely understood and allow for self, peer and supervisory assessment as well as trainer assessment.
- Skills assessment is based on demonstrated competence in realistic contexts (e.g. in the actual work environment).
- A complete record of achievement of competencies is recorded and made available to each learner
- Curricula promote articulation so that learners can progress along their chosen career path without unnecessarily repeating previously learned material.

(Rumsey and Hawke 1988, Field 1990, Confederation of Australian Industry 1991)

Issues and concerns

The competency-based approach offers considerable advantages. Relocating the primary emphasis from the processes involved in training (the inputs) to what a person can actually do in the workplace as a result of the training (the outcome) allows education and training provision to be significantly more relevant, focused and needs-based. Potentially, competency-based training offers a more learner-centred, flexible approach where the learner becomes the focus of the curriculum and the teachers' role becomes one of facilitating learning to a specified level of competency or outcome through the most appropriate and effective means.

The adoption of a broad, rather than narrow, approach to competency allows for the development of 'softer' skills which have been generally recognised by employers, unions and educators as the new competencies required in the restructured workplace. These include cooperation, the capacity to work in groups, problem-solving skills, initiative, critical thinking and multicultural skills. (Sweet, 1989; Matheson, 1990; Pappas *et al.*, 1990).

The recognition of prior learning is of particular relevance to individuals who may have acquired valuable skills informally or outside Australia.

Furthermore, the development of nationally recognised standards and effective ways of progressing through different training programs would allow individuals much greater vertical and horizontal career path opportunities and enable education and training providers to use their resources more effectively.

While there are many advantages in adopting a competency-based approach, it is important to also recognise some of the inherent limitations. Those identified by Field (1990) include a narrow vocational or technical focus and the tendency to over-emphasise areas which can be divided into self-contained, observable tasks.

As Gribble points out: 'The dividing up or reducing of worker skills and knowledge into small, packaged, encyclopaedic, incremental, and prefabricated bits is a very structural approach, no doubt, and superficially attractive. But … rather along the lines of Taylorism which we are supposed to be leaving behind [the current emphasis on competency-based training and assessment in] vocational education and training is creating an impression that it is setting about the task of ignoring the whole, the comprehensive, the conceptual, the broad knowledge of production, and the knowledge of the social context of work.' (1990: 2)

Masters and McCurry (1990) in discussing the development of competency-based assessments of professionals and paraprofessionals, also argue against an approach which attempts to develop a long checklist of narrowly-defined behaviouristic competencies. They suggest the development of a competency profile based on the identification of broad areas of knowledge and skill developed through task analyses and consultations with experts in the relevant professions. Assessment is then based on the sampling of performances from within these areas to determine if a candidate has demonstrated the minimal standard required.

They also point out that in the case of overseas qualified professionals, when the competency-based assessments are conducted in English, *'there is an inevitable confounding of occupational competence with competence in the English language.'* (*1990*: 12)

It is reasonable to assume that this assertion would be at least equally, if not more, valid in non-professional contexts where the oral and written communicative demands are less considerable.

Language and literacy in the restructured workplace

In addition to the development of competency-based standards and training, the implementation of restructuring at a local, company level has also inevitably involved a radical rethinking of existing operational strategies. In order to increase productivity and competitiveness, companies have adopted a range of strategies which have included the following:

- Introduction of new technology—in designing, manufacturing, and monitoring the quality of the product and assisting service operations.
- Integrated manufacturing where the complexity of work organisation is reduced, and machines, people and procedures are integrated under a flatter management structure. Multiskilled teams are then responsible for overall production, quality monitoring and maintenance.
- Quality systems and strategies which integrate quality and productivity improvement. These include Australian and International Standard Accreditation of products and the introduction of strategies such as Just In Time.

The implementation of industry restructuring and adoption of such operational strategies have dramatically increased the oral and written communication demands placed on all employees. These demands include the ability to work effectively as semi-autonomous team members, follow complex written job procedures, access training manuals, computer terminals and formal accredited training programs, and actively participate in a range of consultative mechanisms such as 'Quality Circles' and work-cell meetings. I would like to focus on three areas where the oral and written demands on employees have significantly increased:

1. Written job procedures

In order to remain competitive, many organisations are actively seeking Australian and international accreditation of their products and replacing outdated machinery with new, usually computer-based, technology. These changes have resulted in a massive shift from a basically oral tradition of skill formation and acquisition (e.g. sitting by Nellie, or the buddy approach) to the setting down of all procedures and requirements in a written form. This transition from oral to written text has led to the abstraction of the simplest operational procedure to a point where accessibility and comprehensibility have been significantly affected, as illustrated in the following example:

Operational procedures

1. Select suitable heat-resistant receptacle and undertake specified Q.A. checks (check for cracks, mould, adhering dirt) and take corrective action as required.
2. Follow procedural instructions to select correct prepackaged sachet from the available range and undertake visual Q.A. checks for seal. Position in receptacle, ensuring tag is securely placed on exterior of rim.
3. Using correct implements, and following specified safety procedures, heat water to requisite temperature (within the range of 98°-100°). Transfer sufficient amount to fill receptacle to indicated levels (to a tolerance of 5 mL), as indicated on customer order form.
4. Ensure sachet is immersed and agitated to allow for required colour density uptake.
5. Following customer order specifications, undertake requisite Q.A. checks on required optional additives (visual, olfactory), select and use appropriate tool to measure and incorporate additives to liquid compound.
6. Taking necessary steps to follow safety procedures and minimise waste, extract and discard sachet into appropriate scrap receptacle.
7. Record outcomes on Final Inspection Sheet and Daily Production Schedule prior to transport to designated delivery point.

The literacy, linguistic, conceptual and analytical skills required to extrapolate that these instructions refer to making a cup of tea are considerable, given the complexity of the task, and the minimal language and literacy competencies associated with its actual performance.

While I fabricated the above example to illustrate a point, it is, regrettably, not unrepresentative of the emerging procedural *genre* that is gaining currency in the restructured, efficient, quality conscious workplace. The following authentic extract, for example, outlines some of the procedures that must be followed by a packer of components. The job involves monitoring the quality of components and packing them into paper bags:

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1. Check 4 components per bag for visual defects at the packing station and take appropriate action to immediately report any deviation from acceptable quality to a responsible person.
2. Sort torn, split, dirty and/or unacceptable packaging materials to correct production standards.
3. Operate the transfer lever to move components from the upper to lower tray at the packing station ensuring no loss of components from the tray each transfer period.
4. Load components into paper bags at the packing station given approved quality packing materials without causing further damage to the paper bag.

5. Given approved packaging materials, fold the ends of paper bags at the packaging station to ensure components are retained securely.

The above instructions constitute only a short extract of the total procedures and do not deal with additional aspects of the job introduced by the computerisation of quality monitoring. Previously, a packer would use a number of simple, manual ('go/no go') gauges to check the accuracy of various measurements (e.g. inside and outside diameters). This process has now been replaced by more precise computerised gauges which are connected to a computer terminal and therefore require the operator to follow the computer manual instructions to enter data, use the new measuring instruments and obtain a printout.

2. Participation in consultative processes

With the implementation of workplace reform principles and quality systems, workers' jobs have been significantly redesigned so that on the assembly line, isolated units of production have been replaced by semiautonomous, multiskilled teams that monitor their own quality and output.

Central to quality methodologies such as Just In Time, 8D or Grosby is the concept of regular Quality Team meetings where team members identify problems and co-operatively arrive at solutions.

The competencies required to follow and effectively participate in such meetings are considerable. First, one has to be familiar with the general conventions of meeting procedures such as the role of the chair, as well as the specific conventions relating to the particular methodology adopted in the workplace and its characteristic tools, e.g. brainstorming, fishbone analysis (cause and effect analysis) *Pareto* charts, and a number of others.

Second, there are the conceptual, analytical, language, literacy and numeracy skills required to interpret graphs, flow charts, scatter diagrams and control charts. Then there are the skills involved in extracting meaning from the composite genre of rapid, colloquial speech rich in technical jargon, satire and idiomatic expressions that typifies the discourse of such meetings. In addition, there are the assertiveness and communicative skills required to interrupt such discourse to ask a question or offer an opinion.

Finally, there are the sociocultural aspects of the particular workplace culture, perceived power relationships and individuals' cultural values such as modesty, and the need to preserve harmony and show respect to people in positions of authority, that significantly affect team members' ability and willingness to actively participate in such meetings.

3. Accessing training and promotional opportunities

Under industry restructuring, workers' career progression and wage increases will be integrally and directly linked to their ability to demonstrate achieved competencies through on-the-job and off-the-job training initiatives.

Most studies of literacy in the workplace have established that training for a job demands both a higher level and a wider range of reading and writing skills than those required in the actual performance of the job (Mikulecky and Ehlinger 1987; Wickert 1989).

Similarly, the process of establishing competency standards and assessment procedures, and developing the consequent training programs, has significant ramifications for demands on individuals' abilities to read, interpret and write complex, abstract English texts. The competency-based approach is to a great extent industry-driven, with the aim of developing more performance-oriented, effective and fairer assessment and training methodologies. However, it is not difficult to see how the actual implementation process could become a significant gatekeeping exercise.

A typical assessment of an operator's competence on a machine, for example, will require him/her to read the relevant, self-paced training manual, correctly name the various machine parts and functions in English, describe the processes and possible reasons for product faults and explain the relevant safety aspects of the task. For reasons of objectivity and efficient use of resources, these competencies may well be required to be demonstrated in writing, e.g. short written answers, multiple-choice questions. In order to demonstrate his/her competence as an operator, it will be necessary for this worker to first acquire a specialised technical and educational register and become familiar with a new range of lexical items such as *performance criteria, accurately describe the function of, specify appropriate action, delete whichever is inapplicable*, etc.

Inevitably, s/he will also need to come to terms with linguistic features such as passives, modals, embedded clauses, to understand the question before attempting a succinct written response. *(e.g before starting any electric power tool, what must be worn by the operator? If you find a power tool to be broken after doing an inspection what should you do with it?.)*

Even when an assessment may be conducted orally, there are considerable expectations of workers' communicative ability and familiarity with oral examination techniques as demonstrated in the following extract from a safety module for machine operators (NTB Level 1).

> Performance Objective for safety module for machine operators: Given a selection of 10 good and bad work practices, the trainee will be able to, *without error or hesitation*:
>
> — Identify *all* the unsafe practices.
>
> — Correctly describe the appropriate safe practices.
>
> — Give an oral description of *all the possible* consequences of the continued use of the unsafe practices.
>
> The above must be done to comply with relevant safety codes and *to the satisfaction of company representatives* (emphasis added).

As one worker put it:

> 'We have done the job well for 27 years. I understand how to work the machine. I have improved the performance of the machine and I have trained other workers. I am always told I am a good leading hand. Now they say you need to read and write and pass tests to do the same job I have been doing. That's not fair. The way they give tests, how can anyone pass them?' (Quoted by Hill 1990: 75)

Issues/challenges for education and training providers

If the acquisition and reacquisition of skills are integral to the implementation of award restructuring and individual employees' career progression, then education and training providers have a vital role to play in facilitating this process.

Given the complexity and scope of the changes implemented, a multifaceted approach will be necessary in order to effectively address the emerging needs of the reconstructed multicultural workplace and the individuals working in it.

1. Defining the scope

It is essential to arrive at an understanding of what it means to use language in the restructured work context and communicate this understanding effectively to the relevant parties. It is also essential to make a realistic assessment of the extent to which language and literacy factors constitute a barrier or limit workers' access to training and full participation in industry restructuring and workplace reform.

In the context of the workplace, research indicates that the success or otherwise of communication tends to be judged in terms of its outcomes (McNamara 1990). In other words, the criteria used to assess communicative competence in a workplace context emphasise task completion and successful management of an interaction rather than just linguistic accuracy.

In his 1989 study of the impact of multiskilling on the workforce, Miltenyi points out that:

> There is little recognition that people have been doing some quite skilled jobs which they have learnt with minimal instruction ... While it is true that because of the lack of facility in English that NESB workers find it difficult to learn new skills if the training is conducted in English, it is not true that NESB workers are not learning new skills.

Assessment of language skills would need to take account, for example, of the specialist registers that workers acquire through their work. In summarising extensive research findings into literacy and basic skills in the workplace, Mikulecky (1984: 254) states that: 'Workers tend to read job material more proficiently than they do general material'. An example of this occurred in a language audit assessment where a worker was assessed as having very low literacy skills because he was unable to satisfactorily write a note in English to his wife but then provided a lengthy list of accurately written technical words that he frequently used in the course of his work. This is in no way an isolated incident and demonstrates the role played by familiarity with a specialised field and by motivational factors.

If the broader view of language ability suggested above is adopted, then *strategic competence* would also need to feature more prominently in assessing language ability for work purposes. *Strategic competence* is an ability which enables an individual to make the most effective use of available abilities in carrying out a given task and is seen as a general human capacity (Bachman 1990: 149). This ability is particularly relevant to many workers in manufacturing industry who have acquired basic interactional language skills and who may use approximative grammar, vocabulary and pronunciation. They are, however, as Canale (1987) points out, 'spontaneous, fluent communicators who make full use of contextual clues and communicative strategies' and are capable of successfully completing quite complex workplace tasks using both strategic competence and language competence.

For this reason, the concept of 'minimum threshold' should be considered in the framing of competency standards and in assessing language skills. In other words, since a competency assessment is aimed at establishing standards that relate to realistic workplace practices, workplace educators should be concerned with assessing a minimum language competency level rather than an idealised level for optimal performance, such as ASLPR 3 which has been designated as being 'the minimum vocational proficiency' level.

Masters and McCurry (1990: 19) point out that the typical performance of Australian graduates and practitioners should be taken into account when making decisions regarding what constitutes minimal competence for professionals with overseas qualifications. Similarly, minimal competency standards for NESB workers should be set by reference to what is considered acceptable for their English-speaking colleagues, in order to arrive at a realistic and valid assessment. Levels of accuracy and literacy in the native-born population itself vary significantly.

We must also guard against the temptation to see 'language training' as being the panacea for all the difficulties faced by restructuring in multicultural workplaces or as being the only factor limiting workers' access to the benefits of the new workplace.

In a discussion of the predictive validity of tests of English for Academic Purposes, McNamara (1989: 27) quotes Criper and Davies' (1988) validation study of the ELTS test scores which showed that:

> ... language level at the beginning of a period of study is not a good predictor of final success. Language plays a role but not a dominant role in academic success once the minimum threshold of adequate proficiency has been reached. Thereafter it is individual non-linguistic characteristics both cognitive and affective that determine success.

It would be reasonable to assume that these findings would also be applicable to the industrial context. Cognitive factors, motivation, confidence, educational background are presumably some of the other individual factors that would be significant in determining 'success' in the workplace.

2. Form and content of provision

As discussed earlier, the shift in emphasis from formal qualifications and the 'time served' approach to the competency-based model means that the acquisition of work-related skills may be both on-the-job and off-the-job, in the workplace, or at a formal institution such as a TAFE college. However, any viable form of work-related training will need to:

- Closely relate to the nationally recognised skill classification standards and structures that are being currently established by industrial parties and ratified by the National Training Board.
- Be accredited as part of employees' industry-based qualifications, e.g. the Vehicle Industry Certificate, and provide for articulation to further courses within an occupational stream. Under the national system of skills recognition, this accreditation would need to have portability across workplaces, industries and states.

- Follow the competency-based approach by identifying specific learning objectives and performance criteria which can be assessed at the completion of the course. Relevant prior learning would need to be assessed and recognised in the initial stages.
- Be modular and flexible in format to allow for a wide range of needs, abilities and learning modes, e.g. self-paced, computer-based.
- Incorporate a focus on the development of foundational, learning how to learn skills.
- Be closely integrated with organisational goals and strategies at the local enterprise level and aim for the development of the new, enabling workplace competencies such as problem solving and cooperation as well as the more traditional, technical competencies (Mawer 1991: 20).

These developments have significant implications for traditional workplace ESL courses such as those conducted by the EWP Program. These courses are negotiated at the workplace to take into account both organisational and individual learner needs, but do not necessarily follow the competency-based model outlined above. They focus on the improvement of learners' oral and written communication skills but are not usually directly integrated or linked to formal training qualifications. There is potentially a tension between the educationally sound principles of a negotiated, client-centred curriculum and the move toward centralised, predetermined, competency-based curricula which are also the gateway to promotion and enhanced career paths.

The lack of accreditation and direct articulation of EWP courses into occupational qualifications is likely to marginalise these courses and relegate them to the status of being an optional luxury, especially given the context of dramatically increased levels of technical training, the introduction of cost recovery by EWP and continuing economic recession.

a. Development of appropriate courses for NESB learners

At the individual level, there is an urgent need to develop appropriate curricula and methodologies to upgrade NESB workers' communication skills to enable them to participate effectively in the restructuring process. A significant proportion of these workers would not have received a great deal of formal training, either in their country of origin or in the Australian workplace.

The introduction of computer-assisted manufacturing and the integration of quality assurance monitoring into routine operational procedures have also significantly raised numeracy (or quantitative literacy as it is sometimes referred to) skill requirements for workers. Increasingly, workplaces are requesting courses which integrate the development of literacy, numeracy and computer skills.

The national industrial standards bodies and Australian Committee for Training Curriculum (ACTRAC—previously known as the Australian Committee on TAFE Curriculum) projects have been concerned with identifying the competencies required for different occupational classification levels and developing curricula based on those. However, insufficient attention seems to have been given to the highly multicultural nature of the workforce and the existing language and literacy levels.

The ACTRAC Workplace Communication module, for example, is targeted at Levels 1 and 2 of the National Australian Standards Framework (i.e. a competent to advanced operative or service sector worker). The entry point for this module assumes the following level of literacy and oracy:

> It is assumed the participants will be able to read, comprehend, and discuss printed information in English and to write simple statements based on the material. (Draft National Communication Skills Module, 1991: 11)

An analysis of the sample materials provided in the module indicates that the participants would require a minimum ASLPR proficiency level of 2 (minimum social proficiency), and in several instances 3 (minimum vocational proficiency), in order to interpret the written texts satisfactorily and demonstrate the required entry competencies. (The general exit language proficiency level from AMES courses is 1+ ASLPR.)

Based on the data collected in 1989-91 by the NSW and Victorian AMES English in the Workplace audits in the health, building, steel, automotive and metals industries, the vast majority of NESB workers lack the prerequisite literacy and oracy levels to access such training.

Given that the targeted industries for restructuring are highly multicultural in nature (e.g. 55 per cent NESB in manufacturing), and that 1993 has been set as the target date for establishing competency standards in the pre-trade occupational classifications, there is an urgent need to systematically address the language and literacy needs of the significant number of workers unable to access these supposedly mainstream training modules.

b. Developing services appropriate to a multicultural workforce

As well as focusing on the individual NESB worker's need to develop his/her communication skills, there is an equally important role for workplace language and literacy providers to play in ensuring that the communication demands of the workplace are realistic.

The way we define 'the problem' inevitably shapes the solutions at which we eventually arrive. There is general recognition by government, unions and educational providers that:

> ... literacy, numeracy and other communication and general learning skills are an essential and important element in award restructuring. Unless workers, and those seeking jobs, have those skills they will be denied access to training and career advancement. (Deveson 1990: 69)

It has also been stated quite categorically that English will be the only medium of instruction and assessment in the workplace:

> The Australian workplace may be multicultural but it is monolingual ... One point needs to be made with crystal clarity: those new training opportunities will be available only in English. (Dawkins, 1990: 8)

As illustrated earlier, these instructions and assessment procedures will inevitably be couched in a technical register which, by its very nature, will exclude a considerable proportion of the native and overseas-born workforce.

While there seems to be much laudable rhetoric about access and equity issues and the need to raise the literacy standards of the workforce, very little attention is focused on the assumptions of those specifying the standards, determining the competencies and developing the self-paced training programs and assessment procedures.

There has been, pervasively, an implicit deficit model operating. That is, the problem has been clearly assumed to be that of the individual worker who for a variety of personal, socio-economic, historical and cultural factors has failed to fit the Anglo-Celtic, middle-class, educated, articulate, assertive male criteria implicit in the prerequisites.

There are no explicit mechanisms or guidelines to assist the best intentioned industry parties to ensure that the oral and written communication skills are kept to an essential minimum and that equal emphasis is placed on the clarity of the requirements, the communication skills of the trainers and the accessibility and suitability of the training materials produced. Some workplaces have attempted to address this issue by focusing on narrow, technical, task-based competencies and have avoided specifying communication skills, even though they have adopted team-based approaches. Others have recognised the importance of good communication skills and have attempted to define the required minimum levels.

The following extract from a workplace competency schedule, for example, sets out some of the communication requirements for a worker at Level 2 of the NTB Australian Standards Framework (advanced operative or service sector worker):

- Follow a simple set of verbal instructions given in English.
- Write a simple technical report of approximately 500 words.
- Take notes from a Technical Information session.
- Take notes in English from a given newspaper article.
- Use a thesaurus for identifying synonyms or antonyms.
- Write a notice in English for display on the notice board with information provided to you verbally.

It is not necessary to be a linguist to detect the lack of contextualisation and the inappropriateness of some of these competencies to the actual communicative demands on an advanced operative or service sector person. Yet, in this particular workplace, these competencies have been decreed as the prerequisites for an NTB 2 classification.

There seem to be few, if any, performance criteria for the gatekeepers themselves, who in general are industry consultants or technical experts intent on producing professional-looking documents and are in practice little concerned with details such as the usability of their glossy products or their implications for a predominantly NESB workforce.

For the effective and efficient use of educational resources then, providers need to take a strong lobbying and awareness-raising role with industry training and accreditation boards. The inherent contradictions between the specifications of the NTB Level 1 standards, for example, and the real-life applications need to be pointed out. As discussed earlier, according to the NTB, a person at Level 1:

> ... is required to perform routine, predictable, repetitive and proceduralised tasks, involving very limited theoretical knowledge and motor skills.

However, as any perusal of a workplace induction manual, competency schedule or standard procedural document will demonstrate, the linguistic and cognitive demands being made on such workers are neither routine nor predictable and involve considerable theoretical knowledge. Quite aside from the access and equity issues involved, there is a strong cost effectiveness argument to be made in favour of realistic, accessible standards.

There is a real challenge, therefore, for educators and trainers to ensure that as far as possible, the language and parameters used for defining standards and developing programs do not add further barriers to workers' career path progression through the use of abstract technical language or the requirement to read and write in English about a job rather than actually perform the task in context.

If English is to be the language of training and assessment and, by implication, a significant determining factor in job retention and promotion prospects, then we need to ensure that it is an accessible, realistic, communicative lingua franca variety of English that is used, and not a tertiary level native-speaker variety.

Finally, there is the question of the extent to which a multicultural workplace should accommodate non-native varieties of English and adapt their training and consultative practices to facilitate their accessibility by the workforce. Communication is a two-way process and research as well as practical experience have demonstrated that communication between native speakers and non-native speakers of English can be significantly improved if native speakers are prepared to carry out modifications to the input they provide in speech or writing (Ellis 1990). Given that under access and equity policies, organisations have a responsibility to address these issues, there is a valid role for workplace educators in assisting in ensuring that the criteria of language competence are referenced to the requirements of the real-life work situation (i.e. sufficient, minimal) rather than referenced to an educated native-speaker norm (optimal, desirable).

At the local enterprise level, emphasis would need to be placed on assisting the development of skills and strategies to facilitate effective communication and participation by all workers. This would mean focusing on Plain English and language and cross-cultural support for trainers and managers as well as for those workers deemed to require upgrading in literacy and oral communication skills.

As pointed out by Sweet (1989: 2, 3), the new competencies needed in the restructured workplace include co-operation, communication, working in groups, decision-making and multicultural skills. With the increasing emphasis on participatory work practices, cross-cultural training will become relevant not only for trainers and managers, but also for the facilitation of effective multicultural teamwork on the shop floor and consultative processes such as training committees and consultative committees. Cultural values such as modesty, the need to preserve harmony and show respect to older people and those in positions of authority, for example, need to be taken into account if appropriate strategies are to be developed to encourage full worker participation in a multicultural context. Similarly, predominantly Anglo-Celtic management could greatly benefit by becoming aware of the traditional collectivist, group-focused values shared by many of their workers, which the team-based workplace reform principles are endeavouring to develop.

3. Providing appropriate professional training and infrastructure

Responding effectively to the emerging needs of workplaces has placed increasing demands on workplace teachers and program managers to develop new skills and methodologies that are more appropriate to the context of industry restructuring.

The introduction of cost recovery to EWP has meant that teachers and managers have needed to exercise a broader range of skills and develop innovative responses in a competitive marketplace context. They have done so while at the same time endeavouring to balance important social justice issues such as the needs of older, semi-literate workers or those of struggling multicultural workplaces that have difficulties meeting the new fee structures.

In order to carry out the tasks now being demanded for the present context of workplace education, practitioners would need to develop 'competencies' for the following:

- Promotion and marketing of services and specific courses.
- Negotiating, planning and delivering programs.
- Liaison between different levels of management.
- Conducting language skills audits and needs assessments.
- Program design.
- Curriculum development and course content specific to particular work contexts.
- Appropriate and responsive teaching methods.
- Cross-cultural communication and training.
- Identification of specific oral communication and literacy demands of restructured award classifications.
- Consultancy services on establishing competency standards and training programs appropriate and accessible to multicultural workplaces.
- Redesigning workplace signs, documents and manuals.
- Development of submissions and tender documents.
- Financial planning and accounting.

In discussing the skill requirements for adult basic education, O'Connor (1991: 4) concludes that:

> It is unreasonable and unrealistic, as is the present situation, to expect even the most experienced adult educator to possess the full complement of skills required of all aspects of workplace basic education ... Unless appropriate training is provided (pre- and in-service), regular constructive staff evaluation and support, backed up by quality research and clear policy directives, adult educators will be severely restricted in their contribution to workplace basic education and will be tempted to use methods and resources which they know and are comfortable with, many of which will be inappropriate to the new setting. Education institutions need to urgently conduct skills audits of their own staff to determine existing and future skill requirements.

In view of the rapidly changing workplace context, it may well be useful, as O'Connor suggests, to conduct a skills audit of staff in order to provide appropriate professional development. However, it is also essential to critically review the present administrative structures and practices to ensure their relevance and appropriateness to the new context.

The current EWP program, for example, closely follows the general AMES teaching centre structure. While this may have some advantages, it does not allow sufficient flexibility of response to various industry client needs. Nor does it allow for the formal recognition of the particular demands of the work and the specialist skills needed by staff that are not conventionally considered to be part of AMES teachers' jobs.

The present performance indicators rely heavily on quantifiable data such as the number of NESB workers processed through courses to evaluate the effectiveness of the program rather than examining its impact on facilitating communication, improving productivity, raising morale and increasing NESB workers' access to promotions and training. Yet, the various government initiated reviews of the program have clearly identified those very factors as being the main indicators of effectiveness and success (Eyles Miltenyi Davis, 1989).

There is a need, therefore, to develop other relevant performance indicators that reflect more accurately the nature and objectives of the program. With the introduction of cost recovery, these performance indicators would be of interest presumably not only to the funding government body, but also to current and prospective clients.

The scheduled integration of the DEET Workplace Literacy Program and the DILGEA English in the Workplace Program provides an opportunity for education providers to renegotiate the parameters within which they operate to maximise the effectiveness and responsiveness of the services offered.

To take advantage of this opportunity, education providers would need to ensure that policymakers are fully informed of the key relevant issues. These issues include a clear understanding of the role of language and literacy in the restructured industrial context and a recognition of the minimum requirements necessary for the provision of a viable, relevant and efficient service.

If the program is to effectively facilitate the development of a flexible, multiskilled, productive, multicultural workforce, then it may need some restructuring itself to ensure that it reflects these very qualities, recognises the particular demands of the work, the extent of multiskilling, teamwork and infrastructure required, and provides adequate resources for achieving its stated goals.

Conclusion

With the general recognition that effective oral and written language skills are integral to the successful implementation of restructuring, workplace educators are presented with a unique opportunity to facilitate the equitable participation of NESB workers in this process through an integrated, multipronged approach to service delivery. The challenge for educators is to develop a wider range of competencies to respond effectively to the present demands of the sociopolitical context.

Some of these competencies involve simply the application of well-developed skills such as needs analysis and curriculum design to wider contexts. Other competencies involve the development of additional skills in areas such as advocacy and networking as well as clearly articulating our understanding of communicative competence and adult learning in ways that are accessible to nonlinguists.

If the AMEP is to continue to responsively fulfill its stated aim of *'helping its clients function effectively in Australian society and acquire the language skills they need to achieve their goals'* (AMEP National Plan 199–92: 5), it is essential that its workplace education programs develop the competencies necessary to ensure that language and literacy issues are not systematically marginalised, but are firmly integrated into the mainstream and that the rhetoric of providing equal opportunities for all is translated into tangible realities.

References

Australian Committee on TAFE Curriculum. 1991. National Communication Skills Project. *Workplace Communication Module.* Canberra: ACTC.

Bean, R. 1990. Future Directions for Workplace Education. *Prospect,* 5, 2. Sydney: National Centre for English Language Teaching and Research.

Brindley, G. 1989. *Assessing Achievement in the Learner-centred Curriculum.* Sydney: National Centre for English Language Teaching and Research.

Cleland, B. 1991. Migrants and Award Restructuring. *Prospect,* 6, 2. Sydney: National Centre for English Language Teaching and Research.

Confederation of Australian Industry. 1991. *CBT Proposals for the Australian Vocational Education and Training System. July.* Melbourne.

Criper, C. and A. Davies. 1988. *ELTS Validation Project Report.* The British Council. University of Cambridge. Cambridge.

Dawkins, J. 1990. *The Government Perspective.* Speech Delivered at the Literacy and Productivity Conference: Partners in Productivity. International Literacy Year Secretariat: Canberra.

Ellis, R. 1990. *Second Language Acquisition.* Oxford: Blackwell.

Eyles Miltenyi Davis Pty Ltd. 1989. *English in the Workplace: A Shrewd Economic Investment.* Office of Multicultural Affairs.

Eyles Miltenyi Davis Pty Ltd. 1989. *Study of Multiskilling Impact on the Migrant Workforce.* Department of Industrial Relations and Employment.

Field, L. 1990. *Skilling Australia.* Melbourne: Longman Cheshire.

Gribble, H. 1990. *Resisting Hijack and Seduction:* Literacy Exchange No. 2: 41-55. GATA.

Hill, E. 1990. *Migrant Workers and Award Restructuring.* Office of Multicultural Affairs, Department of the Prime Minister and Cabinet. Canberra.

McNamara, T. 1989. *The Challenge of Communicative Assessment: Defining the Terms.* Paper presented at NAF LASSL National Assessment Consultation, Sydney, December 4-6.

Masters, G. and D. McCurry. 1990. *Assessing the Competence of Overseas Professionals and Paraprofessionals.* Australian Council for Educational Research.

Mawer, G. 1992. *Language Audits and Industry Restructuring.* Sydney: National Centre for English Language Teaching and Research.

Mikulecky, L. 1984. Preparing Students for Workplace Literacy Demands. *Journal of Reading,* December: 253-7.

Mikulecky, L. and J. Ehlinger. 1987. *Training for lob Literacy Demands: What Research Applies to Practice.* Institute for the Study of Adult Literacy. University Park: Pennsylvania State University.

National Training Board. 1991. *National Competency Standards Policy and Guidelines.* National Training Board: Canberra.

NSW TAFE. 1990. *Assessing Competency in the Workplace.* NSW TAFE. Open College. Sydney.

O'Connor, P. 1991. *Staff Training and Workplace Basic Education. CATALPA,* Vol. 1, No 2, April, pp. 4-5. University of Technology, Sydney.

Pappas, Carter, Evans and Koop/Telesis. 1990. *The Global Challenge: Australian Manufacturing in the 1990s.* Melbourne: Australian Manufacturing Council.

Rumsey, D. and G. Hawke. 1988. *Competency Based Testing—A TAFE Approach.* Sydney: NSW Dept of TAFE.

Sweet, R. 1989. *Identifying Skills for Developing Career Paths Based on the Requirements of Industry: A Summary*. Paper presented at a seminar on Developing Effective Industry Training, Sydney, Nov 20–21.

Wickert, R. 1989. *No Single Measure:* A Survey of Australian Adult Literacy. Canberra: DEET.

15

THE NATIONAL TRAINING REFORM AGENDA AND ENTERPRISE BARGAINING

BILL MANSFIELD

B. Mansfield, 'The National Training Reform Agenda and enterprise bargaining', *The Australian TAFE Teacher*, vol.27, no.2, 1993, pp.10–25.

Over the last decade Australia has witnessed substantial change in working arrangements at enterprise level. In matters such as the classification of jobs, the range of functions and responsibilities carried out by individual workers, the training and skill development system, the number of unions representing workers and the factors influencing changes in wage levels we have seen the introduction of a comprehensive set of reforms to enterprise working arrangements.

The ACTU and major unions have been active in promoting change in a range of industrial relations areas, including those which relate to the move toward enterprise bargaining, the training reform agenda, and best practice standards.

In my experience the ACTU and its affiliated unions in the 1980's and 1990's have been much more concerned about constructive reforms which can improve the overall functioning of the Australian economy than has been the case in the past. During the period, 1940's to the mid '70's there was only a low level of concern by unions about issues such as our competitiveness and the future direction and development of the Australian economy. We were not concerned about wealth creation, we were instead preoccupied with wealth distribution. There was a complacency about the future which probably flowed from the post-'45 period of virtually full employment, consistent economic growth and gradually improving living standards. There was also an attitude that issue of efficiency and competitiveness were not union problems, they were 'bosses problems'. We largely defended the maintenance of the status quo in areas such as work organisation, vocational training, functional demarcations and the indifferent relationships between employers and employees.

Management of enterprises also often felt comfortable with the established way of doing things. Largely supplying the domestic market behind a high tariff barrier there was little pressure to change and adopt new approaches. Management approaches which sought to improve quality, utilise the most modern technology, reduce inventory and introduce best practice were largely things of the future. In medium to large enterprises there was little or no effective communications between management and employees. Structured training opportunities were confined to a narrow range of industries and occupations and largely favoured young males. The management style was largely Taylorist with a narrow range of functions carried out under close supervision with little opportunity for individuals to reach their full potential through career opportunities and lifelong learning. The environment promoted a 'them and us' attitude and it led to an adversarial style of industrial relations. It no doubt also contributed to our bad record in terms of industrial disputes and unreliability of supply.

Over the last decade there has been major change to the way in which employers and employees and their unions relate to each other and achieve better outcomes. That change was driven largely by the bitter experiences of the 1974-82 period plus a belief that national and international developments required major reforms in the way we conducted ourselves in workplaces and at a national level in areas such as vocational training if we Australians were to have a reasonable opportunity to maintain and improve our overall living standards.

The leadership of the ACTU and major unions also sought to take a new course during the 1980's in recognition of the difficult circumstances confronting the economy. The new direction was designed to address some of the fundamental problems which acted as a brake on our achieving better economic and social outcomes. The challenges which confronted us were spelt out in various forums such as the tripartite Economic Summit of 1983 and the mission by a number of senior union officers to Europe, Scandinavia and the UK in 1985 which led to the ACTU report known as *Australia Reconstructed*.

The 1980's led to a period of constructive changes to the Australian economy and industrial relations approaches which it is hoped will be further improved in the next few years. Those changes included:

- The restructuring of industrial Awards to provide for fewer job classifications, broader functions, reduced demarcation, career structures and improved skill development arrangements.
- An emphasis in the second half of the decade on productivity issues at an industry and enterprise level as a basis for wage negotiation.
- The changes in our economy which have accompanied financial deregulation and micro economic reform commencing in areas such as telecommunications, aviation, maritime, waterfront, electricity supply and rail freight.
- The restructuring of the union movement to provide for fewer but larger unions.
- The re-orientation of our manufacturing industry towards a more high value added activity and export markets.
- The reform agenda to update our system of vocational education and training.

In an overall sense many of the developments over the last decade were aimed at achieving a more open, internationally oriented and competitive Australian economy. Some commentators are currently critical of the pace of change, however by our past standards the speed and extent of change in many of our key areas of economic activity has been unprecedented.

In terms of wage policy the 1980's were marked by a centralised wage system which, during the first half of the decade, delivered wage increases based upon price changes to virtually all workers covered by Federal and State

Awards. The ability to make adjustments to wage rates or working conditions at an industry or enterprise level outside of a tightly written set of wage principles was virtually nil.

In the second half of the 1980's we maintained a centralised wage system with a rigid set of wage fixing principles but outcomes were determined by the Industrial Relations Commission (IRC) in terms of increases which could be achieved as a result of productivity bargaining at Award level. As most Awards were industry based rather than enterprise based there was not a great deal of scope for enterprise level bargaining around pay and productivity issues. In addition, after the industry bargaining process was finalised the outcome was subject to scrutiny by the IRC to determine whether what had been agreed by the employer and union representatives complied with the prescribed wage principles.

Overall, although the wage system of the '80's had a number of outcomes which were quite positive it reached the point where few of the parties were satisfied with it. From the union perspective the failure of the system to maintain living standards, whilst imposing difficult tests on unions to justify wage increases at an Award level plus the much higher overall movement in unregulated incomes of managers, the self employed and professionals, led to a virtual rejection in 1991 of a continuation by the IRC of its central role in national wage fixing. We sought to move to a less regulated system involving agreements between employers, unions and employees which was to focus at the enterprise level but within a framework of minimum standards prescribed in Awards.

The issues which we have been asked to address go to the implications of a decentralised industrial relations system for the implementation of national training reforms and how the reforms affect the remuneration levels of workers who are recognised as having competencies at particular levels.

In addressing these issues I want to briefly examine the training reform agenda from a union standpoint. In doing so I wish to touch upon:

- The objectives of the training reforms—what do unions hope to achieve?
- Where are the difficulties which are causing unions the most concern at the present time?
- Is the process for achieving change adequate for the future?

Consistent with other changes which have been supported by the ACTU and its affiliated unions change to our system of vocational education and training is not being sought for its own sake. We want to achieve practical outcomes which are to the advantage of workers, employers and the economy overall. We also want to produce a system of vocational education and training which is efficient, respected, valued and understood by employees and employers alike.

The basis of the ACTU's concern regarding the need for education and training reform was well stated in a recent OECD report where it concluded in part:

> Viewed from an economic perspective, the adaptability, dynamism and competitiveness of individuals in the labor market, enterprises, and national economies is seen to depend more and more on the skills and competencies that persons can bring to their jobs. The converse of this is that deficiencies in the skills and competencies of individuals will act increasingly as a drag, not only on their labour market experience, but on the economic viability of

> enterprises, and the economic performance of national economies as well. [OECD (1991) p. 5]

The ACTU and its affiliated unions endorse the OECD position and believe that the three issues of:

i) the education standards achieved by school leavers and their relevance to the individual and the workplace;

ii) the way work is organised;

iii) the availability of initial and further skill development

together will largely determine the long term wage levels and career opportunities for workers. They will also determine the skills and productiveness of individuals and groups of workers on the job. The choices we make in these three areas will be important in determining the direction of our economic development and the opportunity to remain as a country enjoying relatively high living standards.

Others have recognised the new directions in economic development. A 1989 report to the Chief Executive of a US based multinational concluded that:

> The economy is shifting to a high technology manufacturing base and strong service economy. The fastest growing jobs demand higher skills and education levels. There will be few jobs for those who cannot read, follow directions and use mathematics. [Union Carbide (1989) p. 11]

In contrast however a review criticising the state of American labor force skills and qualifications stated that:

> Because most American employers organise work in a way that does not require high skills, they report no shortage of people who have such skills and foresee no such shortage. Americans are unwittingly making a choice...between high skills and low wages. Gradually, silently they are choosing low wages. [Commission on the Skills of the American Workforce (1990) p. 5]

The ACTU supports a position that Australia's future is not in the development of narrow skilled dead end jobs but in work which requires higher skills and knowledge in structures that offer careers and skill development throughout a working lifetime. If we seek to go down the low skill, dead end job path we will inevitably have to accept the low living standards which go with it. In endorsing the new approach a major policy statement related to education and training developed by the ACTU in 1991 stated in part:

> To maintain and improve living standards, Australia requires a shift from low value added, low skill, domestically oriented production to higher value added production and services directed towards the global market. This can only be achieved through a continuous process of employees adding to their learning and responsibilities in new forms of work organisation and professional development, throughout their working lifetime. (ACTU Policy—Education and Training—Congress 1991)

In the view of the ACTU there has been a number of fundamental inadequacies in our past system of vocational education and training. These have included:

i) Many young people on leaving school received no further structured training;

ii) Training which was given was often enterprise specific and did not result in credentials which would be recognised by other employers;

iii) There was no nationally recognised job classification structure against which functions, responsibilities and qualifications could be measured;

iv) There was little or no career opportunity available for many employees and the training provided did not articulate into higher skill levels over a working lifetime;

v) Training and certificates received in one State or from one training institution were not necessarily recognised in other States and institutions;

vi) Women and people with low literacy and numeracy skills were often left out of the training opportunities which existed;

vii) The higher levels of secondary school often did not include sufficient emphasis on abilities, or 'key competencies' which were relevant to the workplace.

In responding to these problem areas the ACTU, unions and employers have done a lot to build both relevant skill structures and career opportunities through Award Restructuring over the last decade. The recent report on the Australian vocational certificate complements that reform to propose a national vocational training strategy to develop the skills that are needed to match the new structures and the needs of workplaces in the future.

Just as other areas of our economic performance have been the subject of change so also must the system of education, training and skill development.

At the 1991 Congress there was a significant debate which considered the developments in the area of education and training and which set out a policy for the future. The policy adopted dealt with ten key areas of activity in the area of workplace reform and skill development ranging from the convergence of learning and working through to trade union involvement in training. Ten key principles were set out and developed in detail—these included:

- To maintain and improve living standards, Australia requires a shift from low value added, low skill, domestically oriented production to higher value added production and services directed towards the global market. This can only be achieved through a continuous process of employees adding to their learning and responsibilities in new forms of work organisation and professional development, throughout their working lifetime.
- A structured national approach to career development, competency based training and skill formation under tripartite control is required.
- Schools must provide the opportunity for the development of the full potential of their students. Along with the need for the workforce to be more highly skilled, there is a need for young people to remain in the learning system longer, to receive a broadly based education which is at the same time related to the experience of the workplace and achieving quality standards of competency.
- Work organisation in the future must overturn the Taylorist approaches of the past. Workers must be provided with greater scope for individual initiative, judgement and responsibility for quality outcomes. The nature of management and supervision must change from an emphasis on control and direction to one which co-ordinates and develops the skills and potential of all employees.

- Training opportunities in the future will be provided through a variety of organisations including State training institutions, private providers and individual enterprises. The essential requirements of this development of a training market are to achieve quality standards with education and training which leads to recognised qualifications associated with those standards.
- The TAFE system must be an essential element of the developing education and training resources of Australia. Adequate funding for up-to-date industrial technology and skill formation practices must be available to TAFE institutions and their related operations with industry.
- Higher education institutions have been transformed from elite institutions into a fundamental part of the public education system. The growth in higher education enrolments and the need for greater mature age access challenges the institutions to provide a diverse range of courses of a generalist and professional nature, to achieve genuine quality standards of competency.
- There is a need for a structured, Active Employment Strategy to provide skill development and training opportunities for those in need of further assistance. Courses provided through the AES should be properly resourced and lead to recognised qualifications.
- Education and training opportunities are a pre-requisite to achieving greater equity in Australian workplaces. Access to skill development with literacy/numeracy training will significantly assist in overcoming the barriers to equal opportunity.
- Training for active trade unionists is essential if up-to-date union services for new skill formation are to be provided effectively at workplace level.

It should be clear that the ACTU and affiliate unions have developed a comprehensive approach to education and training issues. We wish to play an active part in the process of providing working people with the opportunity to gain in skills and knowledge throughout their working lifetimes.

Summarising what we are all about in this area the ACTU wishes to secure a system of vocational education and training which allows individual workers to obtain skills relevant to the needs of the enterprise and the broader labor market over a working lifetime. Those skills should be nationally recognised through a system of certification and they should be portable across industries and State boundaries. In obtaining recognition of skills there needs to be processes which accept that they can be obtained through a variety of means and once having been achieved the skill development effort should not have to be repeated unnecessarily.

Skills must also be utilised in an effective way in the workplace. If management at enterprise level does not support a broader role for individual workers within career structures which allow people to effectively express their talents over a working lifetime the training reform agenda will fall short of its potential.

As was referred to earlier there has been a move from national and industry approaches to wage fixing and industrial relations to one which has a substantial emphasis on enterprise level negotiations. This changed approach appears likely to continue for the foreseeable future.

The question arises as how the change in emphasis will impact on the training reform agenda.

Firstly it needs to be understood that although there is to be greater scope for negotiation at an enterprise level there will continue to be industry wide Awards of the Industrial Relations Commission which will set out minimum standards of wages and working conditions. Those Awards will include job classification arrangements which we would expect to provide a framework for application throughout the industry. So there will continue to be a national reference point through Awards for an industry approach to determining the framework for education and training reforms.

In our view for the majority of employees there is no practical alternative to an industry wide consideration of what is required for vocational education and training into the future. Most employees are employed in small to medium enterprises. It is not possible for example for a business with less than 100 employees to cope with developing classification and competency standards for its employees as well as getting involved in curriculum development and skills assessment and the other elements of the training reform agenda. Yet businesses of this size employ probably more than 70% of the Australian workforce.

In general we see that classification frameworks and competency standards will be developed at industry level and applied in standard units but with flexible overall packages throughout most enterprises.

Whilst supporting industry standards overall the ACTU recognises that there can be an important role for an enterprise approach. Where an enterprise wishes to develop its own competency standards and to deal with the related issues of curriculum development and delivery of training plus assessment of competencies it should be free to do so providing:

i) that the standards do not degrade the skills required for the industry overall;

ii) that the competencies are sufficiently broad to allow individuals to be flexible within the enterprise and able to change employers without extensive retraining;

iii) that there is a consistency between the core standards in the enterprise and those set down at industry level;

iv) that there is a process of scrutiny of the standards developed to ensure that they are adequate for the awarding of a national certificate at a particular level;

v) that the employees and their unions have a role in the development of the standards for the enterprise.

Broadly speaking the ACTU is not opposed to enterprise standards but we want their development to maintain the value of a national system and not degrade it with training which is either second-rate or narrow in its application.

Remuneration

In terms of remuneration there has been considerable debate about the relationship between skills acquired and remuneration received. Some have argued that there is absolutely no relationship whilst others have proposed that the acquisition of higher competencies should automatically lead to salary increases. Some prominent commentators such as Judith Sloane and Professor Pennington appear to argue that the whole training reform agenda has been taken over by the union movement as a back door method of getting wage increases which would not otherwise be justified.

The bottom line on remuneration is that the pay rate received must ultimately reflect the value of the employee to the employer. Where there is an increase in the value to the employer because an employee has achieved a higher competency level then a case exists for higher remuneration. If higher or different competencies result in little or no change to the value of an employee to the employer then remuneration should not be affected.

In some enterprises there have been agreements reached to recognise the achievement of higher competencies with guaranteed higher pay rates. In many cases this is associated with a broadening of functions through Award Restructuring which is able to be better addressed on attainment of higher competencies.

Unions argue that in classification structures which have been multiskilled with fewer levels and broader functional prescriptions the achievement of higher levels of competency often increases the value of an employee and should lead to higher levels of remuneration. There is substance in this argument and it should be responded to positively in those circumstances where the value of the employees' contribution can be seen to improve.

In other cases employers have sometimes wanted to lift the skills base of the total workforce in the enterprise. In a recent example in the National Rail area the employer has wanted to lift the overall skills base to around the ASF Level 3 range of competencies. As a result an agreement was reached with the unions involved that as individual employees achieved nominated levels of competency up to Level 3 there would be a guaranteed increase in remuneration. Above Level 3 an improvement in competency was only rewarded through promotion on merit to fill a vacancy. The unions have accepted this proposal.

There will no doubt be claims made in the future which essentially seek higher pay for higher qualifications. As a simple proposition it is not valid to state that the simple attainment of a higher or different set of competencies must automatically lead to a higher pay rate, however where those competencies are required to be used in a way which adds value to the work which was previously undertaken then a case exists for higher levels of remuneration.

A further dimension of the qualifications, skills, remuneration debate has been concern that the NTB framework has established some sort of industrial relations agenda by linking ASF levels to Award classifications and from there to wages. Through these linkages some people seem to believe that trade unions are using the training reform agenda as an industrial weapon to obtain higher wages.

Firstly let me state that so far as the ACTU is concerned we are not seeking to pursue an industrial relations agenda for wage increases through training reform initiatives. Many of those who allege that we are pursuing a secret agenda have so far as I know never spoken to the ACTU about matters they go to press on. Most of the critics are ivory tower academics who have their own positions of privilege to protect or else are individuals who distinguish themselves through their stupidity rather than intellect.

If the ACTU wanted to increase wages in Australia I can assure you that it would find far easier routes to achieve that outcome than the current rather torturous and complex training reform agenda.

One element of the current process which has caused part of the problem in this area of 'what is the ACTU up to?' is the structures which are used for determining the direction and speed of change. In effect they mean that the reform agenda is not been driven by business. Also it results in the forums for change not allowing the ACTU/unions and employers to talk in a substantial way and we have not yet remedied that gap. I want to come back to this point a little later.

In stating that the ACTU is not involved in training reform to secure wage increases that is not to say that we see no relationship between competencies and wage levels. A competency is a measure of what a person can do on the job. What a person does is directly related to value to an employer and therefore to the wage levels which can, in the circumstances facing the economy, the industry and the enterprise be negotiated in a bargaining process.

As many here would know the ACTU has been pursuing Award Restructuring. In that process we have been seeking to reduce the number of skill classifications, broaden or multi-skill individual work levels and develop career structures. We have also been seeking to establish minimum rate Award wage relativities between various work levels both within Awards and across Awards. Broadly we wanted to achieve an outcome whereby equivalent skill levels in different Awards would have around the same minimum wage rate. This process has been complex and it has taken a long time. But it should not be taken to mean that we intend arguing that because a certain set of competencies in one Award are at, say, ASF 2 Level then there must be exactly the same pay rate prescribed as that of a classification in another Award which also has competencies at the ASF 2 Level.

In any case Award minimums and actual paid rate pay levels are usually very different in quantitative terms. The Award minimum for a tradesperson at the C 10 rate in the Metal Industry Award who has competencies at the ASF 3 Level is $22,150 annual. Most workers in the skilled tradesman classification would receive around $25,250 and their take home rates are largely (and will increasingly be) set by enterprise level negotiations.

So the notion that we will somehow get movement in all Award rates through a change to one Award at particular classification levels linked to particular ASF levels is just a bit unreal.

I described earlier that enterprise bargaining will be the dominant mechanism for securing wage increases for the foreseeable future. In effect this means that the range of factors to be taken into account in wage bargaining will include:

- Productivity/profitability issues
- Work organisation issues
- Rostering practices
- Nature of the work involved
- State of the Local/State/National labor markets

These factors, plus others suggest that standardised training in the future will, just as in the past, not result in standardised pay rates at the enterprise level. It will have a bearing on the minimum rate of pay prescribed in the Award but this will be a long way short of what most workers actually get in their pay packets.

In terms of the difficulties for unions at the present time and the processes which are being used to implement the reforms I believe the major concerns are over the complexity, the demands on resources, and the size and speed of the changes which are being implemented.

At this time we have two major changes being implemented or in contemplation. The first is the move to CBT within the ASF and the second is the introduction of the Australian Vocational Certificate known as the Carmichael report. In addition one could throw in the Mayer report on key competencies. All of these are putting pressure on employers, unions, teachers and government officials to the point where many are calling for a slow down. In many ways I can understand the need for a breather but in reality we need to keep up some pressure because if it is let slip we could easily come to a halt. There is however a need to demystify where we are going and why because at this stage the complexity of the proposals has caused many to become largely disinterested.

Finally to return to a point made earlier it is of serious concern that the reform process is not both owned and driven by industry. In the key forums of VEETAC, NTB, NBEET, ACTRAC and ANTA there is often only a nominal presence by industry representatives, of employers and employees through their unions. The people who are designing and driving the changes are largely government officials who, although dedicated people, often don't have a practical understanding of industries' needs and also, when implementing change are inclined to become too complex in their processes. In other countries such as Germany industry has equal numbers with officials and it drives the agenda through treating it seriously with senior and experienced representatives. This is how we should operate in Australia and changes should be made accordingly.

SECTION 5

THE INTERNATIONAL DEBATE ON COMPETENCY-BASED TRAINING

16

A CRITICAL ANALYSIS OF COMPETENCY-BASED SYSTEMS IN ADULT EDUCATION

MICHAEL COLLINS

M. Collins, 'A critical analysis of competency-based systems in adult education', *Adult Education Quarterly*, vol.33, no.3, 1983, pp. 174–83.

The purpose of this essay is to critically analyze the term 'competency', in hope of enhancing our practical understanding of the concept 'competency-based education'.

The underlying philosophical principles of this paper are derived from Edmund Husserl's representation of philosophy as criticism, particularly as it has been advanced by this student Alfred Schutz. Like Husserl and Schutz, we subscribe to the Cartesian position that the basis of knowledge resides first and foremost within the knowers themselves. This position stands in contrast to the logical positivist position which is the basis for the methods of modern sciences as applied to human action in the behaviorist tradition.

Definition of competency

The *Oxford English Dictionary* (1970) states that 'competence' and 'competency' can be used interchangeably. We will opt for the latter expression, which is more widely used in education. Competency, then, indicates 'a sufficiency of; sufficiency of qualification; capacity to deal adequately with a subject; a sufficient supply; a sufficiency, without superfluity, of the means of life'. While it has been argued that competency alone is insufficient (Parnell, 1972), it would seem that, given the above definition, frequent references to 'minimum competency' and 'maximum competency' are syntactically redundant. Similarly, it is difficult to know how to interpret the expression 'functional competency' featured in the title of the mission statement of the Adult Performance Level Program (Barron & Kelso, 1975). Even more questionable is the misuse of the term 'competencies' for those attributes which are thought to constitute competency in a particular area of human endeavor. Within competency-based literature, frequent use of phrases like 'assigning competencies' and 'failing competencies' are indicative of the extent to which the term has been incorrectly applied. The Report of the U.S. Office of Education Invitational Workshop on Adult Competency Education (1978) makes reference to 'a portion of a competency' and 'isolated part of a competency'. The confusion is more than a problem of semantics.

Excessive reductionism

To a large extent, skepticism about competency-based models emanates, from excessive reductionism, that is, the attempt to explain complex phenomena by discrete, standardized concepts. For example, the revelation that there is a definitive list of precisely determined and enumerated competencies constituting effective performance for teachers of adult basic education is likely to draw puzzled responses from adult educators.

Establishing major categories, sub-categories, content areas, levels of competency, and so on, as guidelines for competent performance involves us further in excessive reductionism. William James (1971, p.247) argued that 'out of no amount of discreteness can you manufacture the concrete'. Efforts to define all aspects of competent performance are doomed to failure. Something alway eludes the definer. However all-embracing the systems of competency-based adult education may appear, there will always be important dimensions left out.

It is simply impossible to define all the properties of competent performance. The futility and possible harmful consequences of doing so are underscored in the following statement by Lindeman (1961/1926) in the *Meaning of Adult Education*:

> The falsest view of life, as in the fable of the blind [folded] men and the elephant, is one which rests on some particularism as its point of reference.(p.172)

And Dewey (1960/1929) has this to say:

> Solution by the method of partition is always unsatisfactory to minds with an ambition for comprehensiveness. (p.61)

It is assumed with competency-based systems that the problems addressed are fully comprehended or, at least, that the most important aspects are already known. The approach is characterized by an attempt to identify all the constituent elements and reduce them into manageable form. 'Manageable form' entails being amenable to measurement. It is the false aura of exactness which imparts authority to competency-based systems. And yet, they tell us nothing about the processes involved in competent performance. True understanding necessitates grasping the meaning of what is being enacted. The notion that lists of competency statements can permit, like the directions for putting together a child's toy, definitive solutions to the problems of assessing competence is simply not tenable, for competency statements fail to connect us with the action in which the determination of competence takes place.

Behaviorist foundations

Competency-based education has its roots in behavioral psychology and it extols the methods of behaviorism. According to Gentry in *Competency-Based Education: A Selection of Essays* (1979), 'outcomes are specified as terminal and enabling behavioral objectives' (p.5). This is not to imply that behavioral psychologists would automatically endorse the competency-based movement in its entirety or that the observational statements of the various competency-based adult education systems are necessarily outstanding examples of behavioral methodology. Nevertheless, it is apparent that the authors of those systems either clearly align themselves with behaviorism or are strongly influenced by its major assumptions.

One might characterize behavioral psychologists as wishing to limit all data on human activity to that which is directly observable. These data 'constitute' behavior and are taken to be the empirical basis of a scientific approach. According to the behavioristic position, anything that can be meaningfully said about human action can be represented in the form of observational statements. Ideally, these statements constitute precise and measurable observations. Mental constructs, concepts of purpose, and subjective meaning are either reduced to observational statements or are regarded as extraneous mentalistic baggage with no relevance to the real world. To the greatest extent possible, behaviorists have adopted the approach of the natural sciences. In equating human experience with controlled sensory observation, behaviorism shares with the natural sciences the basic philosophical underpinnings of logical positivism. For behaviorists, knowledge about the actions of human beings can be derived from overt human behavior just as the controlled 'behavior' of substances renders knowledge of their constitution to natural scientists.

Attempts to achieve in the human sciences the exactitude of the natural sciences through the derivation of reductionist observational statements leads to pseudo-quantification; that is, the application of numbers to endeavors not readily amenable to quantitative analysis. Ortega (1964) comments on this inclination to revere exactitude in the following terms:

> The popular tendency to consider exactitude as an attribute which affects the value of truth lacks both justification and meaning. Exactness cannot exist except in terms of quantitative objects. (p.72)

The behaviorist presumably, would claim that 'quantitative objects' emanate from the observation of behavior. If we are to accept such a claim, we are entitled to inquire about the significance of the measurable objects (acts) observed. For, as Ortega (1964, p.73) points out, 'A truth may be very exact, and yet be a very small truth.'

Certainly, the behaviorist frame of reference raises immense difficulties for a valid study of human endeavor in that it fails to deal adequately with intention and meaning as aspects of purposeful action. Intention and meaning are constituents of competent performance and the grammar of observational statements ignores them. Crick (1976) further highlights the circumscribed outlook of behaviorism in these terms:

> When watching a human being in the course of a social interaction, one is not witnessing a body behaving and failing to witness a mind thinking, one is seeing a person in action. (p.96)

Assessment for many competency-based systems is based on paper and pencil multiple-choice tests, and test developers are often even further removed from the essentials of contextually relevant human action than the behaviorists from whom they draw inspiration.

At best, the program of sensory observation of overt human behavior which serves as a model for competency-based systems takes into account only a relatively small portion of our social world.

It is because these dimensions of knowing are part of the immense arena of the familiar, the take-for-granted, everyday activities of most people, that they cannot conceivably be reduced to a finite number of separate observational statements. An integral part of competent performance, they emerge as a common sense aspect of daily living, and it is on that plane that they are to be understood.

Thus, there is a great deal of meaningful activity that escapes the behaviorist perspective upon which competency-based systems are based. Ironically, despite its insistence on the primacy of observation, behaviorism's status as the foundation of an empirical science has not been unchallenged. Chomsky (1965) doubts whether behavioristic undertakings should be categorized as empiricism at all, since they show very little interest in the problems of description of explanatory adequacy. In *The Logic of Scientific Discovery*, Popper (1965/1959) rejects the entire behaviorist program as being scientifically invalid. In repudiating the whole reductionist approach, Popper argues that it is impossible to derive sets of statements which will coincide with specific sense experiences. Empirical statements in science are connected with theory, and behavioristic psychology is demonstrably atheoretical (Chomsky, 1965). Efforts at compiling a series of observational statements which somehow coincide with 'immediate experience' is just not feasible.

As operational definitions, competency statements do not even meet the requirements of the behaviorist perspective from which they derive, for they are not data statements in the strict behaviorist sense. It becomes apparent that severe limitations are imposed by efforts to incorporate the methods of the natural sciences into the arena of human action. In a vain attempt to capture more of the world of social interaction, an ever-increasing number of loosely conceived observational statements are created which simply do not possess the economy and power of protocol statements in the natural sciences.

There is a logical gap between behavior and action when we treat behavior as being causally determined, as is the case in the biological sciences, and action as purposive. Any account of human performance has to take into account that we do not merely behave in accord with external stimuli; we act as purposeful designers of our own actions.

Quest for certainty

Certitude is a mere belief with its own underlying motives and causes. There are, of course, varying degrees of certainty and the nature of the activity determines the level of familiarity required. However, the continuing quest for certainty often prematurely limits options and strategies. In an effort to precisely determine what is in store for us, we are all too readily inclined to overlook problematic alternatives which might well lead to more rational and satisfactory outcomes.

Competency-based systems are a manifestation of the continuing quest for certainty in human affairs. Divorced as they are from action, competency statements only serve to distract attention from the real issue of improving competence. Rather than making intelligent plans, and modifying them according to actual circumstances, users of competency-based lists may be all too inclined to rely on them as models for creating learning experiences. The nature of the learning activities and the resources deployed emerge from the ingredients of the competency-based recipes, not from the reflective interaction of the actors in the actual situation. In this respect, competency-based models can be viewed as an effort to exert a controlling and restricting influence. They are, in effect, a purposeful attempt to define the teaching-learning situation according to a deterministic doctrine which does not adequately account for the motivational aspects of purposeful action.

Competency-based models suggest that there is a predetermined course to be followed, when, in fact, human actions constantly change as their positive and negative consequences surface. Competence is tested, tempered, and asserted in this arena. This applies as much in adult education settings as to other aspects of daily action. Deterministic, competency-based systems present obstacles and create diversions, when the focus of concern should be on identifying and systematically solving problems and contingencies of indeterminate situations. In this context, a quotation from Dewey (1960/1929) seems particularly appropriate:

> Every situation has vagueness attending it, as it shades off from a sharper focus into what is indefinite; for vagueness is added quality and not something objectionable except as it obstructs gaining an eventual object. (p.235)

Certainly, improved performance benefits from the acquired experience of others. Competence entails knowing how to identify and apply appropriate strategies and resources in dealing with problems. However, competency-based systems are clearly intended to be something more than mere guidelines. There is a determinacy about them which is incompatible with the indeterminacy of everyday life situations. They are based on the questionable assumption that competency is something that can be grasped apart from the practical activity in which it is expressed. Since competency statements are divorced from an individual's real life context, they are artificial.

The busyness syndrome

A further manifestation of the quest for certainty can be witnessed in the compulsion toward busyness. Security is gleaned from 'actually doing something' regardless of the quality of its effects. Reflective inquiry and refraining from action—even where purposeful—often tends to create a tension merely because it is not accompanied by the flurry of busy activity. The point, and it is in no way original, is that busyness does not guarantee individual effectiveness, nor is it necessarily even connected to meaningful action.

Many competency-based systems, like pre-packaged curricula in general, with their semblance of having defined both the problem and the means of its solution, are offered for immediate application. The Adult Performance Level Package, for example, is issued with a user's handbook indicating that the initial problem is to understand how to operate the competency-based system itself. Once users understand their respective roles within the system, the work of learners is 'cut out' for them. And yet, despite its elaborate structure of student workbooks, 'validated' tests, and teachers' data sheets, the APL system, according to a recent statistical study undertaken by Cervero (1980), does not even measure what its own developers intended it to measure, 'functional competence'.

The effect of the 'busyness syndrome' in North American education, and the part played by pre-packaged curricula in encouraging and exploiting it, invites a separate study. Our intent at this juncture is to indicate that inasmuch as competency-based systems serve as conduits for mere 'busy' work, they tend to discourage users from identifying and critically evaluating problems within their own learning situations.

The schooling connection and bureaucratization

There has been a noticeable tendency for competency-based adult education to follow the pattern of competency-based education in the public schools. The impetus for competency-based education has emerged from institutionalized schooling; adult education has followed suit. It is especially apparent from the references and terminology used in the Report of the U.S. Office of Education Invitational Workshop on Adult Education (1978) that developments in the adult education field emanate directly from schooling practice.

Competency-based systems contribute to growing centralization and bureaucratization. In the case of public schools, competency-testing has been implemented to meet specifications set at the state level, and tests are developed by commercial corporations. The danger lies in acquiescing to a centralizing system which, while apparently meeting its own internal criteria, cannot be substantiated by direct reference to the issues that legitimized its creation. We are entitled to be skeptical, especially in consideration in policymakers' statements such as this (Turlington, 1979):

> This program, with its tests and standards common throughout the state, is going to achieve what racial integration could not achieve; true equal opportunity to learn to read, write, and compute. (p.651)

Anonymity and serial thinking

Related to the trend toward increasing centralization and bureaucratization is the problem of anonymity. Not only do widely disseminated curricula and modes of testing raise questions about the separation of knowing from action, a major theme of pragmatist philosophers such as Dewey and William James, they also tend to interfere with face-to-face interaction between participants within the learning situation. Only in the mutual involvement of the face-to-face relationship do we actually experience each other as individuals. In all other dimensions of life we experience one another in varying degrees of anonymity. Hence, the greater the tendency to set up guidelines and content outside of the interactional context, the more isolated become learners from educators, and from each other. Actors in the situation become more remote from one another as their roles are standardized by externally constructed curricula. Ultimately, this state of affairs leads to what Sartre (1977/1975) refers to as 'serial thinking':

> [It] is born in me, thinking which is not my own thinking but that of the Other which I am and also that of all the Others. (p.202)

Serial thinking, according to Sartre, separates people and is resistant to intellectual group thinking which he identifies with purposive action. It is only in a direct social relationship that we gain an immediate awareness of others' subjective experiences; their purposes, hopes, fears, and so on. In contrast, the meaning of our own immediate subjective experiences is inaccessible to us. In relevant direct interaction with others we can comprehend our own immediate experiences. Systems which interfere with the potential for greater understanding through face-to-face interaction can be viewed as having a deleterious impact upon the quality of the educational process. Anonymity tends to arise, then, with the widespread adoption of curriculum systems, compiled apart from the context in which they are to be applied. In Weberian terminology, the compilers of competency-based education programs inevitably address 'ideal types'. In the case of competency-based adult education models these 'ideal types' are constituted as 'the adult basic education student', 'the adult education teacher', 'the administrator of adult education', 'the adult education graduate student', and so on. The determination of the fixed and essential elements of ideal types depends upon the point of view of their designers at the moment of interpretation.

This alerts us to the dangers of imposing standardized systems on a widespread basis, although there is a need for some recourse to 'ideal types' for the purposes of conceptualization. Nevertheless, a large part of the educator's task in learning situations is to enhance meaningful face-to-face interaction, and this entails moving beyond the anonymity imposed by systems created for 'ideal types'. For, according to Schutz and Luckmann (1979), 'The more anonymous the type (by means of which a contemporary is experienced), the more strongly objectivated is the meaning context that is foisted upon the other' (p.79).

Industrial-commercial nexus

Competency-based systems bear the stamp of the industrial-commercial nexus and its approach to productivity and efficiency. Since the remarkable achievements of industrial and commercial endeavors have been associated with the reduction and compartmentalization of work roles into specific units, there has been a tendency to emulate this strategy in formal educational settings. Unitization, standardization, and the language of industrial-commercial systems is pervasive in both educational administration and in curricula.

The atomization which typifies competency-based education is a further manifestation of this trend. The question which arises here, and to which we cannot devote the attention it merits, concerns the appropriateness of transferring the norms and methods of industry and commerce to other dimensions of human activity. To what extent can we meaningfully apply the notion of units and stages of production in our value-laden educational undertakings?

Taking into account the rapidly changing circumstances and shifting scenes of contemporary society, would it not be more practical to emphasize educating for intelligent flexibility rather than engendering more and more competency-based lists to match new and ever-changing job specifications? If we are, in effect, moving from a mechanistic, unitized, industrial society to one which increasingly requires relatively quick and intelligent adaptability, it would seem necessary to bring into question the mechanistic nature of the educational infrastructure. Since adults need 'empowerment' to move with confidence between numerous career tasks, the proper emphasis for educators resides in the acts of individuals rather than on the compilation of inert competency statements.

Operating from a framework of simplistic competency statements may well reinforce a tendency to approach our projects in a mechanistic and stereotypic manner. Whether or not this actually proves to be the case, it is difficult to envision how regular reliance on competency statements is conducive to encouraging us to adapt intelligently to changing conditions and to the predictable incidence of the unanticipated in our working careers.

Impact on distinctive themes of adult education

The question arises as to what extent the deterministic intent of competency statements is incompatible with voluntary learning, self-directed learning, and client-centred learning. Similarly, it is important to note the relationship between competency-based learning and the importance of accounting for a learner's unique stock of previously learned knowledge. As we have suggested, naively espousing both competency-based models and the notion of self-directed learning places some adult educators in an illogical position. Competency statements tend to focus dependency on the system rather than on the learner's unique problems and understanding of them. For example, in reality we become better consumers as we become more adept at identifying and interpreting economic problems on our own account. Competency-based systems typically fail to account for this. In this context, Hallenbeck's (1964) viewpoint is instructive:

> No adult education situation can attain its best possibilities on the basis of a predetermined recipe, for every situation is different and must be handled on its own terms. (p.128)

Designers and administrators of competency-based systems are not able to comprehend educational settings on the same level of subjective meaning as actual participants. Unlike participating facilitators who strive consciously to understand the meaning of their own motives and those of the other participants in the learning context, advocates of competency-based systems adopt the stance of detached observers; their point of view is one of objectivity. Unable to understand the learning situation from the learners' perspective, they cannot take account of the learners' individual definitions of reality and unique constellations of motivation. Hence, if competency statements are compatible with the subjectively meaningful experience of adult learners, it is merely fortuitous.

Competency systems preclude or, at best, diminish the need for us to reflect critically on the contextual dimension of immediate experience. As London (1974) has said:

> Increasingly a premium must be placed not so much on what to think, but on how to think critically. Preparation for living in a rapidly changing world requires that people learn how to learn. (p.27)

If we wish to understand reality, it is to ourselves that we must first turn in critical reflection, rather than to deterministic competency statements. As mere social description, we have no argument with competency statements. It is the presumption that their intent goes beyond description and bears a valid relationship to the real world of the individual we dispute. Only through critical thinking and informed action do we acquire knowledge.

Competency-based systems assume that there is a social reality already 'in place' rather than one which is in flux over which we have conscious influence. The designers of competency-based systems purport to have located in the external dimension of everyday life a predetermined 'functional literate', a 'competent adult education administrator', and so on, along with their equally determined properties. In fact, based on their own subjective interpretations of the world of action, they have artificially created a 'reality'—or, more likely, extrapolated from the 'reality' of behaviorism—in which the rest of us are to participate. The message from this false 'reality' is that knowledge is to be passed on through the teacher, knowledge which has to be acquired in prestipulated amounts if a person is to become functionally literate, or a competent adult basic education instructor, or an efficient merchandiser. The roles of teacher and learner are thus separated.

The intent of this paper has not been to suggest that designers and administrators of competency-based systems cannot practically enrich us. Rather, the analysis has systematically challenged their view of realty, their prescriptive methodologies and pre-packaged guidelines, which is all too often have been taken for granted.

References

Barron, D., & Kelso, C. *Adult functional competency: A summary*. Austin: University of Texas, 1975.

Cervero. R.M. Does the Texas adult performance level test measure functional competence?, *Adult Education*, 1980, *30*, 152–65.

Chomsky, N. *Aspects of the theory of syntax*. Cambridge, Massachusetts: The M.I.T. Press, 1965.

Competency-based education: A selection of essays. Iowa City: The American Testing Program, 1979.

Crick, M. *Explorations in language and meaning*. New York: John Wiley & Sons, 1976.

Dewey, J. [*The quest for certainty*] (Originally published, 1929). New York: G.P. Putnam's Sons, 1960.

Fisher, T.H. Florida's approach to competency testing. *Phi Delta Kappan*, 1978, May, 599.

Hallenbeck, W.C. Conceptual structure for some aspects of adult education. In C. Jensen et al. (eds), *Adult education: Outline of an emerging field of university study*. Washington, D.C.: Adult Education Association of the U.S.A., 1964.

James. W. [*Essays in radical empiricism and a pluralistic universe*] (Originally published, various earlier dates). New York: E.P. Dutton, 1971.

Lindeman, E. [*The meaning of adult education*] (Originally published, 1926). Montreal: Harvest House, 1961.

London, J. Adult education: Definition, description and analysis. In D. Swift (ed.), *American education: A sociological perspective*. Boston: Houghton Mifflin, 1974.

Ortega y Gasset, J. [*What is philosophy?*] (M. Adams, trans). New York: W.W. Norton & C., Inc., 1964.

Oxford English dictionary, Vol.II. London: Clarendon Press, 1970.

Parnell, D. *The case for competency-based education*. Bloomington, Indiana: Phi Delta Kappa Educational Foundation, 1972.

Popper, K.R. [*The logic of scientific discovery*] (Originally published, 1959). New York: Harper & Row, 1965.

Report of the United States Office of Education Invitational Workshop of Adult Competency Education. Washington: D.C.: U.S. Government Printing Office, 1978.

Sartre, J.P. [*Life situations: Essays written and spoken*] (Originally published, 1975). New York: Pantheon Books, 1977.

Schutz, A., & Luckmann, T. [*The structures of the life-world*] (R.M. Zanner & H.T. Engelhardt, trans.). Evanston, Illinois: Northwestern University Press, 1973.

Turlington, R. Good news from Florida: Our minimum competency program is working, *Phi Delta Kappan*, 1979, May, 649–51.

17

IN SEARCH OF A REAL ANALYSIS: CBAE LEADERS RESPOND TO THE COLLINS CRITIQUE

JAMES T. PARKER

J.T. Parker, 'In search of a real analysis: CBAE leaders respond to the Collins critique', *Adult Education Quarterly*, vol.34, no.2, 1984, pp.105–10.

The Forum section of the Spring, 1983 *Adult Education Quarterly* (Volume 33, Number 3) featured 'A Critical Analysis of Competency-Based Systems in Adult Education' by Michael Collins. In spite of the promising title, the author himself states that the article's purpose was 'to critically analyze the term "competency", in hope of enhancing our practical understanding of the concept "competency-based education".'

Many adult educators from around the country have expressed to me their concern that not only is Collins' hope unmet by his article, but that his findings and conclusions are incorrect and misleading. He also has painted an unfair and incomplete picture of the state of CBAE practice.

Nine leaders responded to my invitation to comment on Collins' article. Included in this article are responses by:

- Joe Cooney, ACE Project, California
- Ray Eberhard, California Department of Education
- Deborah Goodman, Adult Education Director, Dodge City, Kansas
- Waynne James, Oklahoma State University
- Ruth Nickse, Boston University
- Elaine Shelton, University of Texas
- Dick Stiles, California Department of Education
- Paul Taylor, Kansas State University
- John Tibbetts, San Francisco State University

Where Collins is wrong

The respondents object to Collins' attempt to analyze programmatic activities by using a dictionary definition of the word 'competency'. Nickse points out that one cannot use a dictionary definition to define competency-based systems because: 1) CB systems are not all the same, and 2) the Oxford definition is too narrow to describe instructional activities called 'competency-based'.

James offers her own definition of competency: 'an orchestration of personal knowledge, skills, and attitudes relevant to the accomplishment of tasks.'

And Cooney offers his three part Adult Competency Education (ACE) Project definition: '1) the reason a skill is required in a job context; 2) a measurable statement of the skill; 3) a test task which measures the skill in the job context.'

Collins takes CBAE to task for excessive use of major categories, subcategories, content areas, and so on. Shelton, however, invites us to imagine a world in which categorization is not utilized. She contends that the establishment of content areas brings manageability and order to the often chaotic notion of competency. This is not likely to stifle the comprehensiveness Collins quoted Dewey as thirsting after. CBAE writers often assert the fact that the parameters of CBAE are not engraved in stone. They are not constant or culture-free, but flexible and ever-changing to reflect changes in the real world. Goodman agrees, reminding us that while CBE as content is quickly outdated, CBE as process is sound.

Nickse, using the New York State External Diploma Program as an example, further emphasizes that the program has never attempted to sum up all the possible elements of behavior that are important, just a sample of them. What CBAE does is clearly define what learning outcomes are to be demonstrated. This takes the 'mystery' out of instruction, in deference to adult learners with diverse skills and interests. Taylor concurs, and states that no one is attempting to define *all aspects* of competent performance.

Others responded to Collins' concern about categories. Note this comment from California:

> We know that CBAE (Mastery Learning, Outcomes Education or whatever you want to call it), if properly practiced, is good educational practice. Labelling it 'reductionism' is not the point. Traditional adult education programs are built on the *hope* that students are learning—as measured by whatever instruments the teacher dreams up or can locate. In CBAE, as it is being developed in California, everyone, including the student, knows not only what he/she is expected to learn but at what level of competence. Time is flexible and instructional goals are worked out individually with students. Thus the student is assured that what is needed and wanted is what is attained.

Collins is certainly not the first critic to label competency-based educational approaches as 'behaviorist'. For Nickse, there is a 'saving grace in behaviorism because it attempts to be organized and sequential, and provides immediate feedback. It fits better with the adult's diverse skills and limited time available.' She contends that CBAE is a fine management system for teaching and testing *when* it is coupled with humanistic elements such as concern for the student's cognitive style and learning pace.

Cooney stresses that his program, and many other CBE programs, are just as concerned as Collins that education be holistic, that it consider the learner's perspective and motive for learning.

The statement that 'competency-based *systems* are a manifestation of the continuing quest for certainty in human affairs' (italics added) uncovers what would seem to be Collins' superficial understanding of what CBAE really is. His lack of in-depth study into CBAE as a *process*, as opposed to a set (or sets) of specific competency lists, is also betrayed when he asks, 'Taking into account the rapidly changing circumstances and shifting scenes of contemporary society, would it not be more practical to emphasize educating for intelligent flexibility rather than engendering more and more competency-based lists to match new and ever-changing job specifications?' Shelton asks:

> Where has the author been while all of the discussions have been going on and the focus of much CBAE instruction has been on *problem-solving*? This important skill, which does indeed recognize and strive to prepare the learner for variable, flexible societal requirements in the workplace and otherwise, has been a major component of CBAE assessment and instruction. The key idea here is transferability. Research-based guidelines suggested for teaching for transfer include making the content to be learned meaningful and relevant as well as allowing for practice in multiple contexts—all hallmarks of the CBAE process.

Others point out that CB systems are not divorced from action, but require learner responsibility and initiative in fulfilling tasks. Tests deal with actual problems which adults have or may encounter. Cooney states that 'students are frequently encouraged to *audit* competency lists—to take the lists of skills to a work site or job training site to validate the need for the skills.'

Furthermore, CBAE is especially appropriate for adult students who are likely to remain only as long as they can see immediate results of (and use for) their learning. CBAE with its integration of 'basic' and 'life skills' insures that transfer is built into the instructional program rather than being left for the student to assimilate and accommodate at some future time when the instructor is unable to get feedback regarding his/her success at teaching.

Concerning Collins' assertion that competency-based systems serve as conduits for mere 'busy' work, Shelton asks: 'If the promulgation of busy work were a characteristic of CBAE, why, instead, is one of its chief tenets to give the student credit for what knowledge he/she can demonstrate?'

Indeed, instruction starts only at the point where this knowledge cannot be demonstrated. If busy work were seen as desirable, credit for prior knowledge would not be given. Instead, all students would begin at the beginning, whether they needed to or not, in order to look or be busy.

Collins states that CBAE has had the tendency to 'follow the pattern of competency-based education in the public schools.' However, if he had conducted research into the history of the Competency-Based Adult Education movement and the minimal competency testing movement within the public schools, he would have found two things clearly apparent. First, he would have found that the CBAE movement predated the minimal competency testing movement of the secondary public schools. Second, he would have discovered that the two movements are not the same and should not be confused. Minimal competency testing may or may not have a relationship to competency-based education. The common misconception that the two are somehow linked seems to stem from the common word 'competency'. A more careful examination of both movements would show enough critical differences to preclude their confusion.

CBAE programs differ from public schooling in many ways. Competency-based adult education

— is not time-based

— emphasizes practical application of basic skills

— offers multiple opportunities for learning

- often does not require attendance
- has different graduation requirements, based on performance
- uses mutiple assessment techniques for demonstration of competency, and
- recognizes the legitimacy of prior learning.

In response to Collins' argument that 'competency-based systems bear the stamp of the industrial-commercial nexus and its approach to productivity and efficiency,' Nickse states that:

> There is nothing morally wrong with striving for a productive and efficient education system. If public schools had had these concerns, they would not be the expensive, inefficient behemoths they are presently. There is simply no time and no money for inefficient adult basic education.

Also, CBAE leaders have consistently pointed out that competency-based systems are readily adapted to changing needs of society by amending their requirements.

What Collins missed

Much was missed by Collins' approach to an analysis of CBAE. Paul Taylor notes that 'The analysis fails to carry the author's underlying philosophical principle—A Cartesian position—to his points ... Collins does not attempt to define 'competency-based systems' or 'competency-based education',' and 'He fails to analyze *components* of a competency-based program.'

Ruth Nickse comments, 'Since Collins never pinpoints an example of a competency-based system, he does not convince me or others that he knows anything about any particular system, and it is dangerous to generalize, which is what he has done.' She adds that 'Adult educators are to be commended, not attacked, for taking a stand. In a morass of conflicting values and vague purposes for education, it is important to establish a baseline of expectations for teaching and testing, and to insure, insofar as possible, that programs deliver what they promise.' Elaine Shelton and Joe Cooney point out that 'Unfortunately this author, like some of his forebears, has chosen just to criticize without offering so much as a glimpse of what he perceives to be a better system.'

Perhaps California CBAE leaders Ray Eberhard, Dick Stiles and John Tibbets summarize Collins' omissions best with this invitation to the reader.

> At the present time, there are some 500,000 adult students involved in competency-based adult basic education classes (including ESL and VESL) in California. Data are being gathered about program implementation which will be in place throughout the state by July, 1985. At that time we will be able to make more systematic and educated judgments. In the meantime, the informal feedback from sites that are almost fully-implemented in the CBAE mode is most heartening. Testimonials abound regarding the satisfaction to student, teacher, administrator, and community leader, alike. We welcome visitors to these programs whereby they may form their own judgments.

The continuing need for worthy criticism

The purpose of this article is not to discredit Michael Collins' concern about CBAE as a force in adult education. Our respondents are also concerned that competency-based educational systems have not received the level of evaluation and criticism they deserve. This is generally true for all of adult education. However, we do insist that criticism be based on a review of current processes and outcomes of CBAE approaches.

Competency-based adult educators have recently dealt with a number of issues and criticisms at the Eighth National CBAE Conference in New York City, November 28-30. Topics addressed included:

- development and support for statewide CBAE policies
- issues surrounding the reauthorization of the Adult Education Act
- CBAE concerns about, and possible contributions to, the national dialogue on school reform
- definitional concerns
- CBAE and cultural diversity among adult learners.

The next National Conference is scheduled for March, 1985 in Southern California. It will be a useful opportunity for critics to respond to CBAE leaders' invitations to study their programs, and make judgments about the worth of CBAE.

Finding your own answers

Considering the title of Collins' article, we find the author's references incomplete and disappointing. If the reader is interested in conducting an alternative analysis of CBAE systems, the following publications are recommended:

Boulmetis, John. *Job competency: Adult vocational instruction*. Belmont, CA: Pitman Learning, Inc., 1981.

Adult education projects that work: Adult Performance Level Project, Project CLASS, New York External High School Program. Washington, D.C.: U.S. Department of Education, 1982.*

CBAE: Linking education, human services, business and industry. (Proceedings of the Sixth National CBAE Conference). Worcester, Massachusetts: Worcester State College, 1982.

Directory of alternative adult diploma programs. Washington, D.C.: U.S. Department of Education, 1982.*

Fischer, Joan K. *Competencies for adult basic education and diploma programs: A summary of studies and cross-reference of results*. Washington, D.C.: U.S. Department of Education, 1980.*

From the classroom to the workplace: Teaching ESL to adults. Washington, DC: Center for Applied Linguistics, 1983.

Nickse, Ruth S. *A field guide to competency-based adult education*. Boston: Massachusetts Department of Education, 1980.*

Nickse, Ruth S. *Assessing life-skills competence: The New York State External High School Diploma Program*. Belmont, CA: Pitman Learning, Inc., 1980.

Parker, J. and Taylor, P. *The delphi survey: CBAE through the eyes of leading educators*. Belmont, CA: Pitman Learning, Inc., 1980.

Parker, J. and Taylor, P., eds. *The CB reader: A guide to understanding the competency-based adult education movement*. Upper Montclair, NJ: Montclair State College, 1981.

* These publications are available free from the CBAE Network, Division of Adult Education Services, U.S. Department of Education, Washington, DC 20202–3585

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REBUTTAL TO: A CRITICAL ANALYSIS OF COMPETENCY-BASED SYSTEMS IN ADULT EDUCATION

SANDRA RATCLIFF

S. Ratcliff, 'Rebuttal to: A critical analysis of competency based systems in adult education', *Adult Education Quarterly*, vol.34, no.2, 1984, pp.111–14.

In the Spring 1983 issue of *Adult Education Quarterly*, Dr. Michael Collins attempts to critically analyze 'competency' as part of his critique of competency-based education. Throughout his analysis , one becomes confused with the terms competency, CBE, CBAE, and APL. For clarification in this rebuttal, the following definitions will be used:

1. *CBE*—'a data-based, adaptive, performance oriented set of integrated processes that facilitate, measure, record and certify within the complex of flexible time parameters the demonstration of know, explicitly stated and agreed upon learning outcomes that reflect successful functioning in life roles.' (Spady, 1977).

   This is a teaching process, nothing more. It can be used with any age group, with any subject.

2. *CBAE*—CBAE is a CBE process of teaching, used with adults, emphasizing the last 5 words of Spady's definition, 'successful functioning in life roles'. Fischer (1978) list six characteristics of CBAE:
   - a Competencies—explicit, known and agreed upon by the instructor and learner. There is no 'laundry list' as Collins indicates, rather, there are competencies that relate to social skills and can and do vary from student to student, as their social needs vary.
   - b Time—flexible; unlike a traditional class semester, time to complete a competency varies from student to student.
   - c Instruction—students choose from a variety of learning activities and experiences. CBAE processes are not limited to modules or paper and pencil activities.
   - d Measurement—pre- and post-tests are administered to avoid re-learning information and to assess mastery of the competency.
   - e Certification—validation of mastery learning is encouraged.

f Program adaptability—program decisions are based on student performance. Spady uses 'adaptability' as a second part of his definition and in practice, it should be the most important part. If a student has difficulty with a competency, the teacher can provide alternative materials and individual help. With program adaptability, the teacher can encourage interaction among the students that further interpersonal relations and problem solving by the individual and with the group.

3 *APL*—The Adult Performance Level Study, funded by USOE in 1970 and conducted by the University of Texas at Austin, was to 'specify the functional competencies related to economic and educational success in today's society and to develop devices for assessing those competencies in the adult population of the U.S.' (APL, 1975)

A link to CBAE can be made with the term 'functional competencies'. However, APL is a *curriculum* for functional competencies. A teaching method is not prescribed. One can teach APL or 'life skills' with any teaching method. The 65 competencies outlined by the APL study are one set of functional skills that can be included or excluded in a CBAE program. The two terms are separate.

Once the definitions of CBE, CBAE, and APL are understood, an examination of Collins' criticisms illustrates the confusion with the three terms. Collins rests his case on:

1 *Excessive Reductionism*. In a CBAE teaching process, the excessiveness of major categories and sub-categories would not occur because there are no lists of categories or competencies. Collins has confused the terms CBAE and APL. CBAE does not list competencies to be completed; APL does. An examination of Spady's definition shows that outcomes are 'known and explicitly stated'. One could interpret that to mean 'known or stated' by the teacher and student, rather than pre-determined by the teacher without student input. The only criterion that a CBAE process has is the reflection of 'successful functioning in life roles. Nowhere does the literature suggest a listing of 'pre-determined competencies'.

2 *Behaviorist Foundations*. Collins quotes Gentry in *CBE: A Selection of Essays* (1978): 'Outcomes are specified as terminal and enabling behavioral objectives'. Collins states that he does not imply that all behavioral psychologists would endorse CBE or that all CBAE systems are behavioral methods. He does say, 'It is apparent that the authors of those systems either clearly align themselves with behaviorism or are strongly influenced by its major assumption'. It is not apparent to me that the link to behaviorism is made with CBAE. The definition of CBAE is broad enough that the teacher/student interaction can be accomplished in a very humanistic setting, the antithesis of behavioristic thinking. Again the word 'adaptive' can keep a CBAE process from becoming behavioristic by design.

3 *Quest for Certainty*. Collins states, 'Competency-based models suggest that there is a predetermined course to be followed, when, in fact, human actions constantly change as their positive and negative consequences surface'. Certainly if 'laundry lists' of competencies are pre-determined and assigned to the learners, Collins is right. Each student varies in his/her needs and goals. It is the first characteristic of CBE—'the student and teacher agree upon the competency' (Fischer,

1978)—that keeps it from being a deterministic system. The teacher who chooses a CBAE teaching process needs to be very careful not to impose his/her biases and values on the student when choosing the competencies to be met. If the competencies chosen are directed to the individual student, then Collins's statement, 'Competency based systems are clearly intended to be something more than mere guidelines. There is a determinacy about them which is incompatible with the indeterminacy of everyday life situation', would not be true.

4 *The Busyness Syndrome*. Collins again used APL to make an argument against CBAE. If anything, a CBAE process eliminates busyness found in a traditional program. Since the objectives of the competency are explicit, and time is not a factor in planning, the student does not need a package or worksheet to fill out a 'semester'. CBAE states very clearly that learning is mastered, but does not specify that pre-packaged materials are to be used or that modules are appropriate, rather that the competencies are to be mastered. A CBAE based classroom can take place outside the classroom (in a garage to learn how to change oil, on a highway for learning to read maps) and can operate without pre-packaged materials (CPR—demonstrated by the American Red Cross, federal housing rules and regulations interpreted by HUD, or birth control information taught by a doctor in a local clinic). The only 'busyness' that should be found in a CBAE classroom is that of the teacher trying to find materials that are current and appropriate to the needs of the individual student.

5 *The Schooling Connection and Bureaucratization*. Collins introduces another competency term—'competency testing' in the public high schools—to further his arguments. One cannot ignore the fact that 33 states have some form of competency testing in their high schools (Phi Delta Kappan, 1978). However, the *Report of the USOE Invitational Workshop on Adult Competency Education* (1978) and *The Delphi Survey* by James Parker and Paul Taylor (1980) based on the workshop, are quick to point out concerns about competency testing. Both reports advocate further research to investigate the effects of different ways of incorporating competency instruction into programs and to develop materials that offer alternative learning experiences. The variety of approaches to CBAE programming since 1978 suggest that a centralized, bureaucratic system is not desirable.

6 *Anonymity and Serial Thinking*. The characteristics of CBAE prevent the problem of anonymity. There are no 'widely disseminated curricula or modes of testing' as Collins fears. Nor is there a lack of 'face-to-face interaction'. The first, collaborative characteristic of CBAE as stated by Fischer cannot be carried out alone. Perhaps what Collins is referring to is a pre-packaged curriculum, which is, again, not a teaching process.

7 *Industrial—Commercial Nexus*. If, as Collins implies, industry and commerce have misused the CBE process, that is their problem. The CBE process can lend itself nicely to industrial training as well as to adult education. One would make just as great an error by assuming that a CBE/CBAE process works well in all learning situations as Collins does by implying that all attempts at unititization and

standardization are bad. As Collins says, 'The proper emphasis for educators resides in the acts of individuals'.

8 *Impact on Distinctive Themes of Adult Education.* Collin's efforts to put all designers and administrators of competency-based systems in one category ('detached observers') illustrates his lack of understanding of CBAE as a teaching process and the possibilities it has for unique learning opportunities in the classroom. If CBAE has a pre-conceived and a deterministic, mechanistic mode of delivery, then why would Nickse, Kasworm, Parker, Taylor, and others be calling for CBAE research, for model CBAE programs, for an improvement in assessment tools, etc. Further, among the 45–50 state ABE plans for FY'83 (Taylor, 1982) that endorse the use of CBAE, one is hard-pressed to find a 'model' CBAE classroom. Collins is correct in saying that a standardized, deterministic CBAE program would give a false reality to the students. The reality is that CBAE programs are so 'flexible' that standardization is not likely to occur in the near future.

The intent of this rebuttal has not been to suggest that CBE or CBAE be used in all adult educational settings. Rather, instead of using a linear and serial approach to CBAE as Collins has, CBE, CBAE, and APL should be examined separately for the depth and diversity they can provide for adult educators.

References

Barron, D., and Kelso, C. *Adult functional competency: A summary.* Austin, University of Texas, 1975.

Collins, M. *CBAE: Its assumptions, presumptions, fallacies and an alternative perspective.* Presentation at the National Association for Public Continuing Adult Education, St. Louis, 1980.

Collins, M. Competency in adult education: Applying a theory of relevance. Unpublished doctoral dissertation, Northern Illinios University, DeKalb, 1980.

Fischer, J.K. *Summary of a review of CBAE.* Washington, D.C.: U.S. Government Printing Office, 1978.

Fischer, J.K. The current status of CBAE research. *The CB reader: A guide to understanding the CBAE movement,* Upper Montclair, N.J.: National Adult Education Clearinghouse, 1980, 96–112.

Kasworm, C. *CBAE: A challenge for the 80's,* Columbus, Ohio, The National Center for Research in Vocational Education, 1980.

Nickse, R.S. *A field guide to CBAE,* Presentation at the National Competency Based Adult Education Conference, New Orleans, 1980.

Nickse, R.S. *CBAE applied.* Presentation at the American Education Research Association Conference, Los Angeles, 1981.

Parker, J.T. and Taylor P.C. *The Delphi Survey: CBAE through the eyes of leading educators.* Belmont, CA: Fearon-Pitman, 1980.

Piplio, C. Minimum competency testing in 1978: A look at state standards. *Phi Delta Kappan,* 1978, May, 585.

Report of the USOE invitational workshop on adult competency education. Washington, D.C.: US Government Printing Office, 1978.

Spady, W.G. A Summary of CBE: A bandwagon in search of a definition. *Educational Researcher* 1977, 6, 9–14.

Taylor, P.G. *CBAE—State of the States Questionnaire* #3. Presentation at the American Association for Adult Continuing Education Conference, San Antonio, 1982.

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COMPETENCY-BASED ADULT EDUCATION AND VARIATIONS ON THE THEME: A REPLY TO MY CRITICS

MICHAEL COLLINS

M. Collins, 'Competency based adult education and variations on the theme: A reply to my critics', *Adult Education Quarterly*, vol.34, no.4, 1984, pp.240–6.

Reaction to my article, *A Critical Analysis of Competency Based Systems in Adult Education* which appeared in the Forum section of the Spring, 1983 *Adult Education Quarterly* (Volume 33, Number 3), was altogether a surprise. It is clear from the tenor of the counter-arguments published in the Winter, 1984 edition (Volume 34, Number 2), that some leading proponents of C.B.A.E. believe a great deal is at stake. The fact that an official of the U.S. Office of Education was able to muster well respected adult educators throughout North America to defend the ramparts (no fewer than nine C.B.A.E. advocates and administrators responded to the call and forwarded their rebuttals for compilation by the Adult Education Specialist of the U.S. Department of Education) adds an intriguing dimension to my comments about the centralizing tendencies of over-arching schemes for curriculum design and implementation. For the purposes of this response, however, I think it would be more profitable to enlarge upon some of the more important concerns touched upon by James T. Parker and the 'nine C.B.A.E. leaders' in their 'Search of a Real Analysis' (pp. 105-110), and by Sandra Ratcliffe in her more thorough-going, and less strident, undertaking to lay out the shortcomings of my critique (pp. 111-114).

Although it is not feasible to engage, blow by blow, with all the numerous and serious misunderstandings of my position which emerge from the reactions of my critics, I must stress at the outset that I most certainly did not quote Dewey as 'thirsting after comprehensiveness' as Ms. Shelton claims. On the contrary, and it is quite clear from the text of my essay, the reference to Dewey (1960/1929) and *The Quest for Certainty* is to demonstrate that C.B.A.E. systems exemplify the kind of interpretation of human experience which Dewey finds so artificial. By and large, however, my critics opted not to engage with the various theoretical sources I incorporated to substantiate my case.

On definition

In the opening rebuttal of James Parker's compilation, Ruth Nickse 'points out that one cannot use a dictionary definition to define competency based systems' (p. 105). Ms. Nickse is quite right. The purpose of using the Oxford Dictionary of 'competence' at the beginning of my critique was to establish that, in general language, competence is an aspect, or quality, of performance rather than an entity which is separate from the actual task in question. This manner of employing the dictionary is used to clear the underbrush for an investigation where there is some doubt about how appropriately a key term describing an aspect of our everyday experience is being deployed. Far from establishing yet another narrow operational definition, the dictionary account is offered to bring into question the validity of operational definitions (for example, competency statements) around which typical competency based curricula, including C.B.A.E., are designed. The intent was to draw our attention to the taken-for-granted certainty residing in claims for comprehensiveness of such operational definitions.

The definitions compiled by Cooney and Nickse (p. 106) are of interest, but their relevance to the debate is quite different to that intended. They reinforce the necessity for us to consider more precisely what we mean when we talk of 'competence'. Their various operational definitions are, at the same time, both narrowly conceived and inadequately analyzed and only add to what Shelton refers to as 'the often chaotic notion of competency' (p. 106).

On categories and reductionism

Although my critique did not directly take 'C.B.A.E. to task for excessive use of major categories, sub-categories, content areas and so on' (p. 106) as the Parker rebuttal affirms, the gist of my argument did point to problems associated with inappropriate categorization. If meant to imply that I am suggesting we can dispense with categories in the day-to-day experiencing of our life-world, Ms. Shelton's invitation to us 'to imagine a world in which categorization is not utilized' (p. 106) is surely gratuitous. However, as an exercise to encourage more thorough reflection, this might well be very revealing for proponents of those C.B.A.E. systems where categories have been reified *in extremis*. Having attempted 'to imagine a world in which categorization is not utilized', they might then begin to reflect more carefully upon the actual worth of C.B.A.E. categories and the consequences of *misplaced concretism* whereby the categories themselves begin to assume preeminence over the actual tasks which constitute the arena for competent performance.

For a better understanding of human action, its vital manifestations (such as competence), and the stream of events in which they emerge, we need to apply our categories in a less trenchant manner, checking them continuously for their relevance of 'cash value' in our various life-world contexts. Admittedly, this does militate against curriculum designers with ambitions to deploy their formulations on a wide scale.

Ms. Ratcliffe's claim that nowhere in the literature of C.B.A.E., apart from the Adult Performance Level curriculum which features so prominently as a model to be emulated in the *Report of the U.S.O.E. Invitational Workshop on Adult Competency Education* (1978), is there a suggestion of listing 'predetermined competencies' (p. 112) is manifestly incorrect. However, she is clear that I am concerned about '*excessive* reductionism' and, quite fairly, does not require her readers to infer that I am altogether denying the usefulness of a degree of reductive analysis when we come to account for some aspect of human endeavor. Instead, Ms Ratcliffe conveniently, though inadvertently, points us to the kind of curriculum strategy that leads to excessive reductionism and 'predetermined competencies' when she recalls Gentry's characterization of C.B.E. as follows: 'Outcomes are specified as *terminal* and enabling behavioral objectives' (p. 112).

A complete reading of both Ms. Ratcliffe's reaction and the rebuttal by Mr. Parker's nine C.B.A.E. leaders reveals that my critics are not of one mind as to whether to defend C.B.A.E. against charges of excessive reductionism or to uphold the traditional kind of behavioristic perspective from which it originates. When referring to 'excessive reductionism,' my intention is to bring to our attention the fact that our way of intelligently talking about various aspects of human action (that is, its grammar and logic) is different from the simplistic accounts that emanate from the reductionist stipulations of such strategies recommended by Mr. Gentry and exemplified in Adult Performance Level curricula and other identifiable competency based systems in adult education.

I do not deny, as Nickse has concluded from my critique, the feasibility of bringing to bear some kind of behavioristic framework to adult education curricula. Rather, I am questioning the particular form of behaviorism which manifests itself in inappropriate categorization and excessive reductionism. Ms. Ratcliffe claims that it is not apparent to her that I have made the link between behaviorism and C.B.A.E. But not only have my other critics, obligingly, confirmed 'the link' between C.B.A.E. and behaviorism, they actually highlight for us the connection of C.B.A.E. with the kind of behavioristic formulations which I bring into question.

Reference to the connection between C.B.A.E. and a particular form of behaviorism (overly reductionistic) is not intended to enter the critique of C.B.A.E. into the behaviorism versus humanism debate on the side of the latter. I do not recommend that we subscribe to the notion that behavioral statements are, *of necessity*, restricted to accounting for variations in movement and cannot logically refer us to the realm of purposeful human action. This is the conclusion reached in an outstanding analysis of R.S. Peters (1960), educational theorist and philosopher. In his criticism of the behaviorist program, Peters identifies behaviorism exclusively with the radically reductionistic analyses of early Wittgensteinians. We cannot explore the important ramifications of these observations in this context, but it is the particularly mechanistic interpretations of human conduct presented by the early Wittgensteinians, subsequently refuted by their successors, which continue to legitimize the kind of behavioristic orientation so pervasive in educational curriculum formats such as C.B.A.E. It is conceivable that some form of a behavioristic program, other than that identified by R.S. Peters as representing behaviorism, can usefully *guide* adult educators in planning some adult learning activities. Even as a mechanistic theory, we cannot rule out altogether the possibility that, with breakthroughs in biotechnology and physiology, behaviorism will be resurrected as the guiding principle for educational programming. In the meantime, however, we can question, with considerable justification, the manner in which the assumptions of a mechanistic behaviorism is brought to bear in the determination of competent performance.

On system and systematism

Operational definitions and a tendency towards excessive categorization, emanating from a mechanistic form of behaviorism, represent a concerted effort to implement a systematized curriculum. When Shelton, Ratcliffe, and others complain that I have given insufficient attention to C.B.A.E. 'as a process,' I wonder whether they are referring to an overarching, or prescriptive, process rather than a number of processes. In any event, it is C.B.A.E. as a system that is uppermost for Nickse who emphasizes its merits as 'a fine management system for teaching and testing' (p. 106) while Cooney and Shelton take me to task for not offering a glimpse of a better system' (p. 108). Although my essay does point the way to alternative approaches, derived from a relevant theory of action (Collins, 1980), the major task of the critique is to highlight the fallacy entailed in constructing a system to determine human competence.

Once again, the contributors to Mr. Parker's compilation and Sandra Ratcliffe are at odds. Do they want to downplay, or staunchly defend, C.B.A.E.'s manifestation as a systematic program? Clearly, we must share a concern for systematism. Systematic programming as a desirable attribute, if not an integral dimension, of the adult learning process receives much emphasis in the literature of the field. In light of this, we are understandably inclined to challenge the *a priori* assumptions on which overall, centralizing systems of curriculum are based since their intervention diminishes, to some extent or other, the task of relevant systematic curriculum planning in the actual learning context. The problem of contextual relevance and its implications for the determination of competent performance in a systematic fashion merits further development which we are unable to pursue in the space allotted for this response. We can note, however, that it does entail the consideration of well-tried recipes, existing guidelines, access to appropriately identified information and available technology, and careful consideration of the life-world of adult learners.

Rather than committing ourselves to overarching curriculum formats, it would be more profitable to focus on the problem of how we prepare adult educators who will be capable of designing their own curriculum, in conjunction with their clients and colleagues, and who can impart something of what it means to 'learn how to learn'. While this presumes widespread cooperation among adult education practitioners, it does not necessitate the establishment of a system undergirded by a new movement with designated leaders.

Unfortunately, a major difficulty is encountered when engaging in critical discourse with educators whose faith in systems seems absolute, since they are of the opinion, like Mr. Cooney, that any criticism likely to undermine the system is untenable unless a replacement is offered (p. 108). Otherwise, advocates for the overarching curriculum format either undertake to justify the system according to its own narrowly defined structures or they begin to fine tune the structures to head off criticism. In either sense, system maintenance takes precedence over a concern with demonstrating whether it works in making us more literate or, generally, better able to act relevantly in shaping our life-world. An instructive example of the former kind of system maintenance can be derived from the event surrounding the inception of competency based education into the public schools of Florida following an 'accountability' law enacted by the state legislature in 1976. Critics of the program included an educational researcher in the area of measurement standards and criteria (Glass, 1978). Little more than a year after the introduction of the C.B.E. program, an article by the Florida State

Commissioner of Education entitled 'Good News from Florida: Our Minimum Competency is Working' (Turlington, 1979) appeared in *Phi Delta Kappan*. The point I wish to make here is that the article ignored all salient criticisms levelled against the system and proclaimed success solely in terms of the questionable assumptions and criteria which it incorporated. There was no way of telling within the space of a year that the improved rate of student success with the standardized tests (after appropriate 'remediation') had begun to achieve the larger and more relevant goals having to do with literacy, mathematical abilities, and 'life-skills', which justified the introduction of the system. The Commissioner of Education further legitimized the C.B.E. system according to its own internal criteria in the following terms:

> This program, with its tests and standards common throughout the state, is going to achieve what racial integration could not achieve: true equal opportunity to learn to read, write, and compute. (Turlington, p. 651).

The N.A.A.C.P. displayed its enthusiasm by filing suit against the State of Florida on the basis that its centralized competency-based program discriminated unfairly against minority ethnic groups.

Variations on the theme

It is true that some of my critics wish to distance C.B.A.E. from C.B.E. in the public schools (despite evidence that the C.B.A.E. phenomenon followed on the heels of demands for accountability and C.B.E. in U.S. public schools) and now, it seems, from the Adult Performance Level curriculum format with its emphasis on improving educational standards of adults by systematically preparing them for pencil and paper tests on a predetermined range of skills. However, while fine tuning the structures of C.B.A.E. and in presenting us with variations on the theme, my critics are maintaining their support for a comprehensive, self-sustaining, program in which they figure as leaders.

Sandra Ratcliffe's insistence that C.B.A.E. must be considered in isolation from the competency based education movement as a whole and the Adult Performance Level curriculum is understandable, but not tenable. Even a most radical reinterpretation of C.B.A.E., literature and curriculum format does not justify a claim that the distinction between the C.B.E. movement, A.P.L. (as an aspect of C.B.A.E.), and C.B.A.E. are anything more than variations on the same theme.

It is encouraging to learn from Ratcliffe that 'the definition of C.B.A.E. is broad enough that the teacher/student interaction can be accomplished in a very humanistic setting.' (p. 112). Does this mean that we are to be obliged for *a definition* of C.B.A.E. which permits student/teacher interaction, or just thankful that 'a definition of C.B.A.E.' does not necessarily get in the way of 'student/teacher interaction?' Ms. Nickse shares Ratcliffe's determination to emphasize the 'humanistic' dimension of C.B.A.E. which she reduces to 'humanistic *elements*.' When humanistic elements are coupled with C.B.A.E., it becomes 'a fine management system for teaching and testing' (p. 106). Presumably, the trick is to know when, where, and how to plug in a determinable quantity of these 'humanistic elements.' Cooney refers us to a program where students are encouraged to visit work sites. But the purpose cited is 'to *audit* competency lists—to take the list of skills to a work site or job training site to validate the need for the skills' (p. 107). Would not a 'humanistic,' and practical, approach entail placing more emphasis on actual task performance and interaction with fellow workers during the accomplishment of appropriate tasks rather than on auditing competency statements to legitimize the established curriculum?

Cooney's reference to 'competency lists' is just one instance of where the C.B.A.E. leaders in their rebuttal spoil Ratcliffe's claim that the C.B.A.E. movement does not encompass lists of predetermined competency statements. If this were the case, what are we to make of competency based curricula designed for adult learners, often with no prior input from either students or instructors, in which the competency statements and kinds of reactions to be elicited from students actually exemplify the kind of mechanism behaviorism Ms. Ratcliffe would regard as the antithesis of a 'humanistic approach?'

In the light of further criticisms, it is feasible that adaptations and fine-turning will continue to be a feature of the C.B.A.E. movement. These variations, such as they are, point us towards a concern for greater 'flexibility,' 'humanistic' considerations, and planned learning experiences. They soften the impact of an artificially contrived and deterministic approach to curriculum deployment. Why, then, was it so necessary in the first place to establish an umbrella movement designated 'C.B.A.E.' with its recognized leaders, legitimizing national conventions, and bureaucratic providers? A concern for competence (nurtured through 'feasibility,' a 'humanistic' outlook, and other practical considerations) is shared by all committed adult educators. One can hardly envisage a characterization of adult education from which the notion of competent performance is absent.

It is not sufficient, though, to point to the redundancy of these variations on the theme as they appear in some recent C.B.A.E. curricula. Misplaced confidence in overarching schemes such as C.B.A.E. has deleterious consequences for adult education in that attention becomes fixed on the system as a panacea rather than upon the need to provide support for the actual practice and preparation of competent adult educators. It leads to a quaint belief that educational performance can be improved by testing learners on any number of statements about a narrow range of skills.

Conclusion

More troublesome to me than the disinclination of the C.B.A.E. leaders to engage with the problems I raised in my original essay, is the underlying presumption that legitimate critique should be confined to refining or justifying their curriculum approach. It is as though they have erected a shibboleth within adult education and any criticism which questions its founding assumptions, rather than aiding in its further consolidation, is to be discredited as iconoclastic. We are told by the leaders of C.B.A.E. in their rebuttal of my critique that 'competency based systems have not received the level of evaluation and criticism they deserve' (p. 109) and that there is a 'continuing need for *worthy criticism*.' The purpose of the reaction by the ten C.B.A.E. leaders 'is not to discredit Michael Collins' concern about C.B.A.E. as a force in adult education.' However, from their anxiety to dismiss concerns raised and the serious, even if unintended, misrepresentation of my position, it is apparent that the essay does not, in their view, constitute 'worthy criticism.' There are, unhappily, different and conflicting points of view among my critics as to what would have constituted the focus of 'worthy criticism.' Cooney (p. 108) wants an alternative *system* outlined; Taylor (p. 108) chides me for failing to analyze C.B.A.E. components and, elsewhere in the rebuttal, I am taken to task for not focusing on C.B.A.E. as a *process* (p. 107). At the outset, I am charged (incorrectly) with offering a definition for C.B.A.E. while another critic faults me for *not attempting* to add to the plethora of definitions. It is not apparent how such disparity can offset the issues raised in my critique of C.B.A.E.

One strategy used to discredit the critique was to suggest that I am not sufficiently well versed in the literature of C.B.A.E. Even if this were true, it is not apparent that a critique loses validity because the author refers us to carefully chosen examples of the literature to substantiate his standpoint. As a matter of fact, I am conversant with much of the literature cited by my critics. Together with other examples of C.B.E., it occupies an inordinate amount of office space. So much of it can be accounted for under the rubric of 'variations on a theme.' Small wonder that writers of thoughtful manuscripts on adult education have been frustrated in attempts to become published when the expectation is that adult educators are not ready to subscribe to more serious literature as a means of improving professional competence. Nevertheless, a careful interpretative study of the C.B.A.E. literature (cited in the text of my critic's essay, and provided free of charge by the U.S. Department of Education) would be very worthwhile, especially if the particular perspectives of C.B.A.E. leaders on the nature of human experience are not merely taken for granted.

The fact that some C.B.A.E. leaders, as Ms. Ratcliffe declares, are 'calling for C.B.A.E. research, for model programs, for an improvement in assessment tools, etc.' (p. 113) confirms their commitment to the maintenance of C.B.A.E. but does not in itself dispense with any of the concerns expressed in my critique. One can still acknowledge the well earned status of these leaders of C.B.A.E. within the field of adult education while showing how misguided is the notion that competent performance can be broken down to particularized events and fitted into an *a priori* scheme of interpretation for curriculum design.

References

Collins, M. (1980). Competency in adult education: applying a theory of relevance. Unpublished doctoral dissertation, Northern Illinois University, DeKalb.

Dewey, J. (1960/1929). *The quest for certainty*. New York: G. P. Putnam's Sons.

Glass, G.V. (1978). Minimum competence and incompetence in Florida. *Phi Delta Kappan, 59*, 602-605.

Peters, R.S. (1960). The concept of motivation. London: Routledge and Kegan Paul.

Turlington, R.D. (1979). Goodnews from Florida: our minimum competency program is working. *Phi Delta Kappan, 60*, 649-651.

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THE CASE AGAINST 'COMPETENCE': THE IMPOVERISHMENT OF WORKING KNOWLEDGE

NANCY S. JACKSON

N.S. Jackson, 'The case against 'competence': The impoverishment of working knowledge', *Our Schools/Our Selves*, Apr., 1989, pp.77-85.

Who can be against 'competence'? It is the motherhood slogan of current reform movements in institutions of education and training. It has come to stand for basic, no-frills learning related to life roles, in which goals are clearly specified and results are objectively measured. Thus, we are assured, with the competency approach a dollar spent on education brings a dollar's worth of results. This 'common-sense' approach to educational efficiency is touted as the answer to individual employability and the key to Canada's 'competitive edge' in the new global economy. The rhetoric is persuasive, even comforting, in these times of economic upheaval. Behind these catchy slogans of public policy, however, the impact of the competency movement on education and training practice in Canada is complex and contradictory. It is transforming the conditions of teaching and learning in a host of public, private and community-based settings, defining educational and training needs in ways that are not 'on our side'. In the name of efficiency and effectiveness, it is installing forms of educational thought and action that erode rather than enhance our long-term economic and social well being. This pervasive transformation has to date largely escaped both the critical attention and the concerted resistance of the progressive community. On the contrary, as participation in training initiatives grows among labour organizations and community agencies, those who ought to oppose these measures are increasingly becoming its practitioners.

Spreading like a virus

The competency syndrome has spread much like a socially transmitted disease. It is communicated not only through the persuasive rhetoric of public policy, but also through routine contact with administrative and funding mechanisms which penetrate and organize learning activities in schools, colleges, social agencies, labour organizations, community groups, and employer-based training programs.[1] Whether in literacy programs, English as a second language training, adult basic education, skills upgrading, job retraining ... the list goes on ... the 'disease' follows a predictable pattern. Contact commonly begins on paper, as in the following excerpts of a letter of response from the Ontario Ministry of Skills Development to a union application for training funds:

> Dear Mr. [Labour Educator],
>
> Thank you for forwarding your proposal ... [etc.]
>
> ... let me make the following suggestions ... [regarding your proposal] ... I agree that the introduction of computers will affect most jobs and may, in fact, cause job dislocation, but it is not clear to me from your proposal how computerization will affect members of [your union]... While your survey indicates that union members want training, it is not clear to me what specific skills they now possess... An examination of the required and current level of competence of union members would be beneficial, [and] I suggest that you identify the specific 'behaviours' that union members will demonstrate at the end of the training. Ideally, these 'behaviours' would be stated as performance objectives ... for example ... "the trainee will type the letter ... with no more than 10% errors, within 10 minutes" and evaluation would be conducted on the basis of performance and results ...
>
> It has been found that training based on performance objectives in this form is more effective and efficient... [etc.]
>
> I trust that my comments have been helpful ... [etc.] Please feel free to contact me if I can be of further assistance as [your union] develops its training initiative ...
>
> Yours truly,

The general format for specifying training plans requested in this letter will be familiar to many organizations and groups across the country who have applied in recent years for training-related funds from a variety of funders, including most programs under the Canadian Job Strategy. The approach insists on the specification of training objectives in terms of specific behaviours and performances which are said to constitute the 'required competencies' of a job or a 'life role'. While irritation and frustration with this format is a common experience among applicants (ask any three community organizations!), there has been little time or space for collective reflection about the way this framework gives shape to our actions, as well as our imagination, in the sphere of education and training.

Excluding workers' interests

The competency framework offers educational opportunities from which the interests of working people have already been excluded. The mechanisms of this exclusion are the very characteristics which are said to account for the 'efficiency', 'effectiveness' and 'relevance' of the approach. For example, the competency format requires educational goals to be specified in terms of 'behaviours' and 'performances' rather than in terms of knowledge and understanding. The net effect of this practice is to impose a narrow and short-sighted perspective on the definition of learning 'needs', weighing in favour of those 'objectives' which can be expressed in simplistic, often mechanical terms. Such a restrictive view of competence obscures and trivializes many essential aspects of learning for work as well as many critical elements of mastery in performance. In so doing, it undermines the most rudimentary understanding of both the long- and short-term interests of workers.

Such limited and specialized training opportunities serve as a kind of planned obsolescence for workers, like a date stamp on the forehead: 'Best Before December 1989'. They mean that the cycle of 'life-long learning', hailed by liberal-minded reformers as an opportunity for continuous enhancement and enrichment of the skill-base of the worker, will be predicated instead on the fundamental impoverishment of workers' knowledge. The much-promised 'flexibility' and 'relevance' of such a system is realized by creating a workforce which is disposable or recyclable, rather than one which is innovative, and therefore durable, on the job.

Skill: Complex terrain and a history of struggle

The simplistic pursuit of one-dimensional 'competence' obscures many essential features of everyday working knowledge which have long been at the heart of the struggle between working people and their bosses. In particular, it obscures many aspects of mastery in performance which depend upon general comprehension of the work process rather than the accomplishment of specific tasks. These are the forms of working knowledge which underlie 'good judgement' on the job, including reliable intuition for routine problem solving or 'trouble-shooting' and safe reflexes in unpredictable or even emergency situations.[2] They also provide the basis for much of the job satisfaction of workers, including occupational identification and pride in work, whether for office workers, steel workers, or carpenters.

These same underlying dimensions of working knowledge have tremendous strategic importance. Workers have long used them both formally and informally to resist the goals of the employer and to pressure for improvements in their terms of employment and in the quality of the work day. This power in the hands of workers, embedded in the organization and control of shop floor know-how, has come to be seen by employers as an encumbrance, and is a primary target of the present campaign for greater 'flexibility' in labour supply.[3] The competency approach contributes to such 'flexibility' explicitly by dismantling the organization of working knowledge which gives workers this kind of strategic leverage. It fragments workers' knowledge into discrete chunks, permitting limited forms of training to levels specified by the employer, building the basis for a form of subordination which relies, not on attitudes or discipline, but on the organization of working knowledge itself.[4] It also aims to identify 'core' or 'generic' skills which provide for equivalency and transferability rather than exclusivity of skills. Such a reorganization lays the ground for new forms of shop floor work arrangements which undercut existing collective agreements and for new approaches to 'human resource management' at the level of the firm as well as the state. It facilitates a new approach to decision-making not only about hiring, lay-offs and training, bul also to basic tools of labour market management such as occupational classifications and eligibility for unemployment insurance.[5]

At its worst, this fragmented approach to skill training resembles what Frank Smith has called (in the context of public schooling)—'programmed learning ... a ritualistic teaching of non-sense, educational junk food, instruction with no significant intellectual content.[6] The alternative, at all levels of education, is a form of pedagogy built upon a vision of the whole, the kind of 'really useful knowledge'[7] which includes not only a broader knowledge of production but of the social context in which our daily lives are embedded. In the absence of such a pedagogic strategy, the competency movement is rapidly propelling us toward a crisis of common sense, a destruction of our sense of the whole while at work. This crisis is captured very simply in the comment of a disillusioned vocational instructor in British Columbia, who said of his own students, ' ... These people can perform discrete mechanical repair tasks, but they have no feel for the engine ... I wouldn't want to hire them in my garage!'[8]

Beware of easy answers

The power and popularity of the competency approach derive from its appearance as a common sense solution to a simple empirical problem. It lulls us into believing that the 'requirements' of work can be established more or less as fixed entities, and that we need only use objective, empirical procedures (free from the vested interests of educators) to determine what they are. But even this basic claim is illusory, since in practice the demands of the workplace are not fixed at all but ever more rapidly shifting in response to technological change and work restructuring. In this context the overwhelming 'need' is for a constantly evolving and expanding repertoire of skills among workers, built on a broad comprehension of the production process which informs decision-making under constantly new circumstances. From this perspective, an adequate approach to training for Canadian workers will be fluid and dynamic, comprehensive rather than fragmented.

But there are dangers too, in pursuing a broader approach to working knowledge in the present historical juncture. The danger arises from the fact that clear separation/classification of job tasks and job knowledge has been at the foundation of trade union power over this century, permitting at least the most privileged segments of the working class (predominantly white males) to maintain some control over the sale of their labour. With the emergence of more fluid work processes and the growing popularity of Japanese-style management, this organization of worker's power is being undermined. New forms of workplace organization, such as multi-crafting and work teams, are gaining popularity among workers because they give more opportunity to the individual to exercise a wider range of acquired working knowledge. Thus they make jobs more interesting, if also more intensified. But these innovations are contradictory for labour to the degree that they are introduced without adequate strategies for preserving (let alone increasing) the bargaining power of workers. In a free trade environment, as old forms of work organization are discarded by managements, the contradiction of this situation for labour can only increase.[9]

The other important danger embedded in the competency paradigm is its invasive power as a system of accountability for educational action. That is, in spite of its seductive rhetoric, the approach is not simply designed to make workers more 'competent' or learning more 'relevant' to management interests in the work process, but is also there to make the education and training process more accountable in these terms. It provides a rational and systematic framework for program design and delivery in which the 'needs of industry' are seen to be central, and through which the conduct of education and training can be made accessible to external planning and decision-making.

In the present policy climate, these features of the competency approach are a powerful incentive for its use. They make education and training processes more administerable, not by educators, but by managers in the offices of educational institutions as well as in industry and government. Its terms of relevance reflect and embed this set of interests. Broad educational goals and considerations of pedagogy are rendered invisible, while concepts such as 'efficiency and effectiveness' come to reflect administrative rather than educational concerns.[10] Thus the approach subverts not only our practice, but our imagination about the enterprise of education.

Furthermore, the effect of the competency paradigm is not limited by its power to shape the practice of individual teachers or the decision-making of individual institutions. Its impact is also systemic, shaping the various kinds of regulatory activities through which the state has a voice in the conduct of education, and through which the educational apparatus reproduces itself. The competency approach becomes the basis for course content and program approvals, as in the labour education initiative cited above. It also comes to set the standards of professional practice for teachers, trainers and adult educators, through programs of certification in colleges and universities across the country. In this light, the full hegemonic impact of the competency framework comes into view: it increasingly defines the agendas of both debate and action in educational community. Hence we are returned to the question with which we began: who can be against competence?

The obvious answer is that all of us must be against it, if the momentum of this destructive and contradictory approach to education and training is to be halted. We should individually and collectively refuse the administrative arrangements which make us its practitioners in isolation from one another in public schools, post-secondary institutions, labour unions and community groups. We should claim an effective voice in redefining the interests of 'ordinary Canadians' in all kinds of education and training opportunities, including the right to acquire—and to use for our own ends—comprehensive forms of knowledge at work. The 'case against competence' deserves a central place on our agenda for political action.

Endnotes

1 For an extended discussion of this effect in community college programs, see N.S. Jackson *Competence as 'Good Management Practice ': A Study of Curriculum Reform in the Community College*, Ph.D. dissertation, University of British Columbia 1988. For a related discussion of the impact of administrative mechanisms in the context of community organizations, see R. Ng, *The Politics of Community Services*, Toronto: Garamond Press, 1988.

2 For an interesting discussion of the role of human judgment in the Three Mile Island nuclear disaster, see L. Hirschhorn *Beyond Mechanization*, Cambridge, MIT Press, 1986. For discussion of more routine aspects of taken-for-granted working knowledge, see T. Manwaring and S. Wood, "The Ghost in the Machine: Tacit Skills in the Labour Process', *Socialist Review* 74,Vol 14, no.2, 1984. For Canadian research which makes visible these dimensions of work see S. Meurer, D. Sobel and D. Wolfe *Challenging Technology's Myths*, Toronto: Labour Council of Metropolitan Toronto, 1987;

M. Cohen and M. White, *Taking Control of our Futures: Clerical Workers and the New Technology*, Vancouver Women's Skill Development Society, 1987; D. Robertson and J. Wareham, *Technological Change in the Auto Industry*, Willowdale, Ont, Canadian Auto Workers, 1987.

3 See the excellent discussion of 'flexibility' at the level of shop floor experience in D. Robertson and J. Wareham, *Computer Automation and Technological Change: Northern Telecom*, Willowdale, Ont., Canadian Auto Workers 1988.

4 For a more detailed discussion see N. Jackson 'Skill Training in Transition: Implications for Women' in J. Gaskell and A. McLaren (eds.) *Women and Education: Canadian Perspectives, Calgary:* Detselig Enterprises, 1987.

5 See D. E. Smith and G. W. Smith, *The Job/Skills Training Nexus: Changing Context and Managerial Practices.* Occasional Paper No.3, The Nexus Project, Ontario Institute for Studies in Education. Toronto, 1988.

6 F. Smith, *Insult to Intelligence,* New York: Arbor House, 1986.

7 R. Johnson, 'Really Useful Knowledge': Radical Education and Working-class Culture', in J. Clarke et al (eds.) *Working Class Culture.* London: Hutchinson 1979.

8 Jackson, op. cit. 1988.

9 See D. Robertson and J. Wareham, op. cit. 1988,1987.

10 See A. E. Wise, *Legislated Learning: The Bureaucratization of the American Classroom.* Berkeley: University of California Press, 1979.

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ON 'COMPETENCE'

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P.D. Ashworth & J. Saxton, 'On "competence"', *Journal of Further and Higher Education*, vol.14, no.2, 1990, pp.3–25.

Abstract

In this paper we comment on the notion of competence and on the widely-recommended practice of defining learning and assessment in terms of competence statements. Two lines of comment are explored.

Firstly, we consider the meaning of competence as an aspect of the *description of human activity*, and find that it has not yet been coherently specified. In particular, it is not clear whether a competence is a personal attribute, an act, or an outcome of action; moreover, the idea of competence, as currently used, is open to complaints that it is atomistic, individualistic, and unable to cover all types of relevant behaviour or mental activity.

Secondly, we discuss the *implications for education and training* of the adoption of competence as a model of outcome. We note difficulties with the design of competence statements, which can be empty and uninformative. In addition, the idea of competence seems to lack reference to the personal processes entailed in a skill, over-simplifies the theory/practice relationship, and so on—all of which can lead to serious difficulties in training and education.

Introduction

The current interest in competence-based learning appears to have originated in the United States. During the 1970s the US Department of Health, Education and Welfare encouraged a number of colleges and universities to develop competence-based curriculums. These reforms, their background, context and impact are documented and discussed by Grant *et al* (1979). This major work provides a comprehensive overview of the development of the competence-based learning movement in the USA.

The origins of the competence movement can be traced back to the turn of the century when concern for a more rational, cost-effective and practically useful curriculum began to emerge. They see the development of competence-based higher education in recent times against this recurring theme. But more specifically it is, Grant *et al* suggest, a response firstly to the increase in both the numbers and the variety of backgrounds of prospective students and, secondly, to increased societal demands for nationally higher levels of competence. Rushman (1972) argues that the latter originates from four concerns which were, and still arè, prevalent in America society. These he identifies as: one, the demand of the times for increased competence; two, the demands for different kinds of competence; three, the pressure for more opportunities to gain competence and four, the 'fear of decay'—the feeling that standards of achievement, morality and order were in decline.

The team of researchers developed and adopted the following definitions:

> Competence-based education tends to be a form of education that derives a curriculum from an analysis of prospective or actual role in modern society and that attempts to certify student progress on the basis of demonstrated performance in some or all aspects of that role. Theoretically, such demonstrations of competence are independent of time served in formal educational settings.

They completed case studies of nine such competence-based programmes and examined some of the problem associated with competence-based education. Broadly these problems lie in three areas: the specification of the competence, the teaching of a competence, and of difficulties to do with assessment. It is worth noting that these problems and paradoxes, although identified as long ago as 1979 do not appear to have been taken on board in any serious way by the competence movement in the UK.

In the UK one of the first bodies to promulgate the notion of competence was the Royal Society of Arts. The RSA's schemes range from pre-vocational school based to post-graduate level. In 1980 RSA produced a manifesto entitled 'Education for Capability', its aim was to encourage and develop four capacities which they considered to be under-emphasised in the education system. These capacities are identified as competence, coping, creating and cooperating. The RSA asserted that any programme designed to educate for capability must increase the demonstrated competence of learners through 'active methods of learning'. Since then, developments in competence-based learning have taken place primarily in the fourteen to eighteen age groups, i.e. in secondary school and further education.

In the early to mid eighties most comment emanated from the further Education Unit who published a number of short documents which had to do with competence-based learning (see: Basic Skills, 1982a; A Basis for Choice, 1982b; Core Competences in Engineering, 1985; Towards a Competence-Based System, 1984). This latter publication is a statement of how the FEU views the issue of 'a training/education philosophy which is based on competence'. It argued that a wider definition of competence was needed—one which not only encompassed 'work skills' but also formal and informal learning and life skills. The essential characteristics of a competence-based system were identified as being:

— a careful definition of the competence to be mastered;
— an understanding of the competence by the learner;
— an appropriate delivery;
— valid assessment and accreditation.

The definition they put forward is 'the possession and development of sufficient skills, knowledge, appropriate attitudes and experience for successful performance in life roles'.

The report concludes that many problems are posed by competence based systems but that agreement on a wider definition would be a start in the right direction.

The most important and influential publication of recent years is the report of the Review of Vocational Qualifications in England and Wales (1986). This report, undertaken by the DES and the (then) MSC reviews the present arrangements for vocational qualifications and goes on to specify objectives and make recommendations for the future. Basically, these recommendations amounted to the establishment of the National Council for Vocational Qualifications (NCVQ) with a remit to 'implement, or secure action to implement, a system of vocational qualifications that will achieve the objectives of comprehensibility, relevance, credibility, accessibility and cost effectiveness.' The NCVQ should bring together all vocational qualifications within a new national framework to be called the National Vocational Qualification (NVQ). This would embrace levels of award up to and including higher levels of professional qualifications and would describe standards in terms of 'competence'.

It is envisaged that:

> This statement of competence should incorporate the assessment of:
>
> — skills to specified standards;
>
> — relevant knowledge and understanding;
>
> — the ability to use skills and to apply knowledge and understanding to the performance of relevant tasks.

The timescale required that the framework be fully operational for levels I-IV (i.e. not including the 'professional' level V) by 1991.

All this clearly implied massive changes for the near future in terms of both the structure and context of all kinds of vocational learning schemes

After the publication of the NVQ report the FEU published what amounts to a response (Assessment, Quality and Competence, 1986). It identifies and addresses some of the issues and the difficulties created by the demands of the NCVQ for an across-the-board competence-based system. The issues are discussed under the headings of structure, objectives, quality, competence and assessing competence. The particular likely problems and anomalies within each of these areas are brought out. For instance, under 'Quality' it states that: 'A system of vocational qualifications based on restricted definitions of competence may give spurious and short-sighted solutions to the problem of enhancing quality.' The 'Competence' section highlights practical problems with the *definition* of competence—'The standards that help to define performance may be the result of detailed discussion but these are more often than not arbitrary and relate to roles (and demands) as they are perceived at a particular time.' Discussion under 'assessing competence brings out a whole range of problems to do with the duration of assessment, assessing in the workplace, testing for transfer and recording competence.

It is worth referring here to a number of the statements made in the conclusion of this document. Firstly: 'Setting up new structures and mechanisms will not automatically solve the difficult problems that always arise when one person attempts to judge the performance of another.' Secondly: 'We point out that some of the objectives set by RVQ, although totally desirable, are in conflict with one another. This will require balance and judgement, and will no doubt provide a constant source of criticism.' Thirdly: 'The defining of competence is not an exact or static science, and standard setting is almost by definition an arbitrary—not to say political—process. ' Finally they state that assessing competence 'is an incomplete technology; there are no easy answers; and the inclusion of experiential learning will make the situation more complex. ' (FEU, 1986 p 12).

In 1987 a report was published by the FEU outlining the nature of competency-based education and giving an account of the use of such a scheme. (Hermann & Kenyon, 1987). The first section of this provides a useful introduction to competency-based vocational education. It draws on the FEU's 1984 definition of 'competence', and considers 'vocational competence' as a *subset* of competence including knowledge, understanding, skills, tasks, attitudes, experience and roles—it is 'competence in a specific occupation.' There is a clear distinction between 'competence' and 'a competency', the latter being more specific. A competency is defined as: 'a performance capability needed by workers in a specified occupational area. Competencies may be cognitive, attitudinal, and/or psychomotor capabilities. A competency does *not* imply perfection: it implies performance at a stated level (criterion).' (Hermann & Kenyon, 1987, p.1).

In examining the rationale for CBVE, five factors are identified, namely:

- the desire for vocational competence
- the needs of learners during their working life
- the accommodation of past and current experiences of learners
- the desire for effective learning
- the desire for effective assessment

This part of the report goes on to discuss the features of CBVE including those relating to teacher/learning methods, curriculum materials, student assessment and staff development. The second section introduces DACUM (Developing a Curriculum), a highly structured example of CBVE which was developed and subsequently widely used in Canada. This system was adapted and adopted for use on a City and Guilds catering course at Burton-upon-Trent Technical College in 1984/1985. An account of this case study is given in the report. Results in terms of student performance are described as 'very positive'. Areas of difficulty were: Student self-pacing; understanding the learning materials and difficulty experienced by tutor in moving from 'traditional' methods. The decision was subsequently taken to convert all catering day-release courses to a CBVE approach.

The authors conclude the report by stating that: 'a CBVE can be used successfully in many vocational courses, providing it is effectively implemented. Such an implementation includes the adequate preparation and commitment of the tutors, the provision of adequate resources, and the provision of an adequate transition period.'

This report provides a comprehensive insight into how the notion of competence-based learning can be interpreted and utilised in the area of craft/technical further education. During the mid to late eighties many new Further Education initiatives and examining bodies have taken on board the 'competence' idea—some notwithstanding RVQ and some as a direct consequence of it. A comprehensive guide to new initiatives in the school/further education field is given in Hitchcock (1988). This includes an examination of the background, aims, structure, criteria and impact of each of the initiatives. These include the Technical and Vocational Education Initiative (TVEI), the Certificate of Pre-Vocational Education (CPVE), the Youth Training Scheme (YTS) and the General Certificate of Secondary Education (GCSE). All of these will come under the umbrella of the new NVQ.

Against this background of new initiatives and changing curricula, Harold Silver published a study of the development nature of 'vocationalism' in post-compulsory education (Silver, 1988). A useful chronology of vocationalism is given and vocationalism is put into context in terms of intentions, traditions and attitudes. In particular, Silver considers the notion of 'competence and skill'. He distinguishes the concept of competence as used currently in British further education from the narrower 'competency based' approaches to teaching used in America in the 1970s. In the UK: 'It was a broadly based approach to the learning of role, it was specific and general, it was concerned with process and with integration' (Silver, 1988, para. 68). He goes on to highlight the diversity of understanding and implementation which has ensued: 'competence was being developed as an umbrella concept to incorporate skills and attitudes, knowledge and experience. Different interpretation pointed to different policy and programme implications' *(op. cit.*, para. 73). Silver argues that little real progress has been made in terms of outcomes and that:

> The recent history of the context and design of schemes and courses suggests a tendency for old dichotomies to appear in new guises, and for the intention or the rhetoric of breadth or generous interpretation to move into narrower channels.

The most recently published documents which have a bearing on the implementation of competence-based vocational education/training are the set of guidelines produced by the Training Agency (Development of Assessable Standards for National Certification—Guidance Notes 1-6, Training Agency, 1988-1989). They give a clear description of the intentions of the NCVQ regarding the structure of an NVQ—Candidates will qualify for NVQ's by accumulating a number of 'units of competence' (anything from 5 to 20). Each 'unit of competence' will comprise a number (average of four to five) of 'elements of competence'. The NVQ itself, then, will be a 'statement of competence' made up of 'units of competence' which are themselves made up of 'elements of competence'.

The Training Agency Notes are designed to assist those who are involved with standard setting, assessment and certification for vocational qualifications. The aim is to introduce a commonality in approach.

The influence of these Guidance Notes is yet to be made apparent but potentially they could provide the basis for implementation of many of the NVQ schemes.

So much for the history of the competence approach in education. The impression one gains is that the movement has produced a persuasive rhetoric concerning societal demands for the skilled workforce, and has also given rise to quite careful guidelines concerning the way in which competence statements should be devised. We find careful analyses of the idea of competence, and balanced appraisals of its value and limitations, to be relatively scarce. It is the purpose of this paper to provide a sketch of such a critique, necessarily echoing from time to time criticisms already raised in the literature of competence.

Competence and human activity

The standard Training Agency account of the meaning of competence runs as follows:

> ... (Standards) will form the prime focus of training and the basis of vocational qualifications. Standards development should be based on the notion of competence which is defined as the ability to perform the activities within an occupation. Competence is a wide concept which embodies the ability to transfer skills and knowledge to new situations within the occupational area. It encompasses organisation and planning of work, innovation and coping with non-routine activities. It includes those qualities of personal effectiveness that are required in the workplace to deal with co-workers, managers and customers.

This account is plainly seen by the Training Agency as definitive. It is elaborated in their first 'Guidance notes' booklet (TA, 1988a), and repeated on page one of all the booklets in the series published so far (TA, 1988-1989).

The idea of competence is clarified through the use of some associated terms: elements of competence (often called 'competences'), and performance criteria. Thus the standard set of definitions published by the Training Agency goes on to say:

> The exercise of developing standards for a particular occupational area ... is done by deriving a set of individual elements of competence and their associated performance criteria. An element of competence describes what can be done; an action, behaviour or outcome which a person should be able to demonstrate. Or an element of competence may describe such things as the knowledge or understanding which is essential if performance is to be sustained, or extended to new situations within the occupation. Each element of competence has associated performance criteria which define the expected level of performance.

But here, in the very definition of competences, we already see a potential muddle. An element of competence can be an action, behaviour, outcome, piece of knowledge, or an understanding.

1. Competencies are of unclear logical status

What are competences? Are competences mental or physical characteristics of a person? Or are competences pieces of behaviour—actions? Or is it a particular outcome of behaviour which is the focus of a competence—an overall product, irrespective of the details of how it was arrived at?

The unclear logical status of competence has important consequences. For instance, let us say that it is a central management competence that an individual be able to communicate well with a diverse set of people—perhaps employees, customers, suppliers, etc. One person may do this communication by direct personal performance. Another manager may well get information across effectively to the relevant people, but does so because he or she delegates communication to another individual who is known to be a good communicator.

Have both these individuals communicative competence? In the first case, particular pieces of behaviour indicate a certain individual mental capacity. In the second, the outcome of the manager's action is the same, but only because—maybe recognising his or her personal incapacity—deliberate steps have been successfully taken to ensure that the incompetence is effectively neutralised (and in doing this the manager is compensating for incapacity in one area through the use of skill in another area, that of delegation).

If competence only refers to an individual mental capacity or a personal skill, then only the first manager has communicative competence. If the focus of interest in crediting a person with competence is the overall success of their performance, then both the managers would be deemed competent.

There is a problem over the logical status of competences, then. However, one can readily understand the reason why the Training Agency wishes to adopt a broad view, even if that gives rise to difficulties. It is hoped that, by providing as wide a definition of competence as possible, a very large number of the entities and events which make for productive work outcomes will come to be included—and be available for assessment. However, this overstretches the term, as we shall see, and makes for unclarity. It is in the end self-defeating. The limitations of the competence notion must be made plain.

In the Further Education Staff College's *Guide to work-based learning terms* (1989), an attempt at clarification is made:

> There is frequently confusion between competence and performance ... (In fact) competence is a quality possessed by an individual as a result of learning. A performance is the expression or demonstration of that competence in some particular circumstance. Competence may be inferred from a succession or variety of performances. Conversely, one may predict from knowing that someone is competent that they will perform successfully in certain circumstances ...

Although this attempt at clarification would help to fix the logical status of competence, two difficulties need to be pointed out. Firstly, the paragraph pretends that it is merely making plain what 'competence' has all along really meant, whereas in fact the Training Agency defines competence in a manner which does not distinguish it from performance, but rather states that competence *is* performance: 'It is a description of an action, behaviour or outcome which the person should be able to demonstrate' (Training Agency, 1988b). Secondly, were the FESC alterations in the definition of competence accepted, and competence were confined to individual mental or behavioural *capacity* to perform, then the notion of competence would be even more open to the criticisms that it is individualistic and lacking in awareness of the importance of context.

To summarise this section, the decision about the logical status of competence matters. It needs to be recognised that an activity may have successful results through the application of any one of a potentially limitless set of actions, and that the mental processes governing each action again may take a very large number of forms.

The general issue of the logical status of competence statements will appear again in the following pages, especially in our treatment of the problem that the notion of competence can lead to an over-individualistic view of human activity, and when we discuss the difficulty that competence statements can 'atomise' learning and assessment.

2. Some outcomes can be the result of diverse individual processes

Consider the realm of arithmetical competence, and the putative element of competence 'Can answer standard questions based on the three times table'. Three individuals may meet performance criteria related to this competence. But the mental processes by which the criteria are met may be very different indeed. One person may answer by rote. Another individual may have a mental image of a multiplication table as 'bulk adding' (e.g. summing three threes), and the underlying mental activity might be a kind of visualisation. The third person might understand the three times table as rhythm through a row of the numbers (1, 2, *3*, 4, 5, *6*, 7, 8, *9*, ...). The point to be made is that the competence is the same, but what has been done is quite different. If competence is to be understood as action, behaviour, or an outcome of behaviour, rather than as a mental skill, then a great deal which is of importance in teaching is missed.

One serious problem is that the mental imagery and so on which goes with a given act may be responsible for a later error, or a later difficulty in grasping new arithmetic skills. Rote learning misses out on understanding. The 'bulk adding' approach, though showing a valuable insight, might turn out to be too cumbersome in more complex multiplication. The rhythmic attitude to tables, though again involving a valuable insight which could come into its own in grasping other numerical series, may well be too dependent on covert recitation of the table, rather than homing in on the specific multiplication problem. The emphasis on competence can therefore detract from careful teaching, as we shall see below. If people have not 'scored' well in a test of competence there is no explanation (or approach to explanation) of why this is the case with the idea of competence.

3. The idea of competence is atomistic

The Training Agency urges us to treat any particular competence as a complex entity made up of a number of simpler items of ability. The simpler items—'elements of competence'—are taken as contributing to the overall competence. But the way in which complex activities are 'made up' of elements of competence is unspecified.

In practice, the competence approach gets applied in a given occupational area by the generation of a long list of competence statements which are intended to cover all the skills, pieces of information, and performances necessary to carry out the required tasks. Thus, it is assumed in practice that individual elements of competence add together to produce global competence. Interestingly, Boyatzis (1982) specifically warns against such a simple view of the structure of competence in his major book on *The Competent Manager*.

The inappropriateness of an additive view of skill is clear in the following simple example of 'gearchanging competency'. A competent car driver is someone who can judge the speed of the vehicle; can judge the engine revs; can notice approaching conditions which might necessitate or force a change in speed or revs; can (thus?) decide whether to change gear; can operate the clutch; can operate the accelerator; can operate the gear lever; can coordinate the last three skills under appropriate driving circumstances so as to change gear.

Plainly, individual items do not just add together in order to generate the accomplishment of changing gear. Even in the above (abbreviated and inadequate) account, it was necessary to introduce ideas of coordination and integration of the lower level skills. But such talk of individual items of skill plus the skills that integrate them may all be merely a descriptive exercise, and may have nothing to do with how the skill of gearchanging is actually carried out. In fact, in very many skills, it appears that the 'lower order' items are only actually mastered in the moment that 'integration' occurs—at that moment the skill is acquired almost as a whole. A cyclist never learns separately to incline the body, to turn the wheel, to press the pedals, and to judge the fall of the bike from the vertical; all this happens as a coordinated whole.

A complex skill entails elements none of which can even be defined independently of the rest. Any behaviour is a 'meaningful Gestalt'; a whole in which the individual elements affect each other in a manner that changes their nature. The elements of skill are not recognisable or separable from the complex whole.

It is, at least in the present context, sensible of the Training Agency to recommend a functional view of competence (TA, 1989a). This avoids, in principle, the grossest absurdities of atomism—stripping skills down into really microscopic elements, which then have somehow to be combined as units of competence. However, since atomism remains in the idea that elements of competence sum to give overall competence, the problem still has to be tackled.

In fact, it is very often the case that some elements of competence can be missing but be compensated for by others. We have already seen that communicative competence may be compensated for by the capacity for effective delegation in managerial roles. Let us now take a less specific social skill.

It is generally conceded that a stranger should not immediately raise contentious issues for lighthearted discussion if the stance of the other is not known. Politics and religion are clear instances of danger areas. Thus it would be regarded as socially unskilled to 'leap in' with risky assumptions about the acceptability of one's political views with a new acquaintance. Presumably, then, a person who habitually did this would be lacking in a competence. However it is not uncommon for individuals to 'get away' with such misdemeanours because of a general pleasantness of manner which makes them—almost overridingly—acceptable, virtually whatever they say. The lack of a competence is compensated for by such 'skills' as 'charm'.

Indeed, the area of social skill is one in which the additive model is just impossible to apply. The whole performance—otherwise very commendable—can be subverted by a trivial gaffe or faux-pas. A very poor performance can, on the other hand, be rescued by tact, charm or graciousness, or by the brute force of high status (i.e. performance may be deemed to be good simply because The Director did it).

In summary, the idea of specifying elements of competence which are understood to sum to produce an overall competence is fraught with difficulty. And even in those cases where it is actually true that several quite distinct acts are required in fulfilling a task, the notion of competence does not tell us how to weight the acts in relative importance.

4. Competences are excessively individualistic

The Manifesto of the Education for Capability movement (RSA 1980) states that:

> … A well-balanced education should, of course, embrace analysis and the acquisition of knowledge. But it must also include the exercise of creative skills, the competence to undertake and complete tasks and the ability to cope with everyday life; and also doing all these things in cooperation with others.

However, despite the final phrase of this statement, the notion of competence as usually applied focuses attention in learning and assessment on the *individual*. In the world of serious and fateful action, the upshot of human activity is very typically not the result of the behaviour of any one individual, or even of a team whose separate contributions are identifiable, but of a group *as such*.

Consider firstly those workplace activities whose outcomes are essentially products of the group. No one individual's mental powers or personal skills need to be the source of the successful outcome, nor need any aspect of the product be traceable to any individual. Thus there are products for which no specifiable component competencies of individuals are responsible.

A particularly good illustration of this is provided by an important piece of research into management team building (Belbin, 1981). Belbin points out that a management team can combine all the qualities necessary for success which one individual alone cannot possess. He identifies eight key team-roles which are essential to effectiveness and which, when mixed in the right way, combine to form a successful team. This would seem to be absolutely counter to the argument for educating a group of potential managers (for instance) all to the same standard and with the same emphasis on the same list of competencies. Would this not produce a group of 'standardised managers' when what is really needed is a group with diverse talents and strengths? To quote Belbin:

> The useful people to have in teams are those who possess strengths or characteristics which serve a need without duplicating those already there. Teams are a question of balance. What is needed is not well-balanced individuals but individuals who balance well with one another. In that way, human frailties can be underpinned and strengths used to full advantage. (Belbin, 1981, p.77)

Also consider 'groupwork competencies'—which are often essentially dependent on others who play complementary roles. The person who is adjudged to be able to 'work well with superiors', or to be a 'good team member' is, whatever else, lucky to have been granted superiors with whom he or she was able to work well, and colleagues with whom teamwork was possible. There is no guarantee that another superior or colleague would be so 'competentogenic'.

5. Context is neglected in competence

The fact that context is neglected in the treatment of human activity in terms of competence is strongly related to the above discussion of competence as individualistic. The individualistic bias in the notion of competence means that the social environment of task performance is neglected. But there are other aspects of the context of human action which are neglected in the use of competence as a guide to thought concerning training and assessment.

Despite the link of the notion of 'transferable skill' to competence, there is no evidence that all the things for which people can get credit are actually transferable to contexts other than the situation in which the competence was measured. In a way, this idea forms one foundation of the emphasis on competence, since the authors of this approach took the view that, very often, vocational qualifications did not reflect the needs of employers, and that the learning which led to the qualification did not transfer well to an industrial context. Thus it is regarded as being of central importance that competences should be transferable to new settings.

Both YTS and CPVE lay great emphasis on skill transfer yet 'so far there has been no significant evidence that these intentions have been realised' (FEU, 1986, Para. 32). Some of the complexities involved in skill transfer are recognised by the FEU:

> The teaching and learning strategies associated with transfer are concerned with raising the awareness of the learner with respect to his/her own learning styles and potential for transfer. The act of transfer also requires skills ... These are usually related to the individual being able to identify his/her needs in a new situation, adjust or reorganise previous learning, and assess his/her performance.

Now, it is true that learning does not always readily transfer from college to 'real life'. An important series of studies carried out by a research group at Gothenburg University has shown this convincingly (e.g. Saljo, 1982). But the reason for lack of transfer is often to be seen in the shallowness of the learning—the lack of genuine understanding which took place. There is no guarantee that the use of the notion of competence will increase the depth of understanding which accompanies learning.

The Gothenburg group also insists that learning is *necessarily* related to the specific context in which it takes place. Thus, an individual is likely to have to learn specifically to apply academic knowledge to the work environment, and to apply knowledge gained in one work context to a novel situation. It is true that some individuals seem more readily able to see relevant applications in new contexts than others. Why this is so is, frankly, not yet properly understood. What can be said is that the use of competence statements to describe learning attainments does not actually address the issue of transfer at all.

In sum, any skill or knowledge is part of a person's 'lived world', it gains its meaning partly from the context in which it is learned. It is an error to regard the competence as an isolated mental capacity, divorced from the lived environment. The problem of transfer from one context to another is not likely to be solved merely by assessing knowledge and skill in terms of competence.

In the section on assessment (section 13 below), a further aspect of the neglect of context in the idea of competence is discussed. This is the fact that, in making judgements of another person, it is a pervasive tendency for the judge to attribute the cause of whatever happened to the person rather than to the surrounding circumstances. Thus, in assessment it is very likely that either competence or incompetence will be attributed to the individuals in the situation, when in fact the outcome was at least as much to do with the propitiousness of the context, or to some contextual hinderance.

6. Not all human activity—even directly work-related human activity—fits the competence model

Since the notion of competence is supposed to include all 'qualities of personal effectiveness that are required in the workplace', it is certain that we have here a very diverse set of qualities indeed: attitudes, motives, interests, personal orientations of all kinds; modes of attunement, perceptiveness, receptivity, openness, creativity, social skills generally, interpersonal maturity, kinds of personal identification, etc.—as well as knowledge, understandings, actions, and skills.

Is it sensible to subsume all these very different kinds of human activity and diverse qualities under the one rubric of competence?

Clearly, the Education for Capability movement wishes to give the idea of competence a more limited scope, and introduce further concepts to cover the areas which, though included in the Training Agency definition of competence, seem to stretch the notion too far:

> The great majority of learners—whether pupils at school, students at universities, polytechnics or colleges, or adults still wanting to learn—are destined for a productive life of practical action. They are going to do things, design things, make things, organise things, for the most part in co-operation with other people. They need to improve their *Competence*, by the practice of skills and the use of knowledge; to *Cope* better with their own lives and the problems that confront them and society; to develop their *Creative* abilities; and, above all, to *Co-operate* with other people. (RSA, 1980)

It would be beyond the scope of this paper to take a whole taxonomy of kinds of human activity and try to assess whether the idea of competence could cover the field. It is more appropriate to consider a couple of test cases. We have taken 'maturity' and 'critical thinking' as undeniably important aspects of personal effectiveness in very many work roles.

a. Maturity as a competence

Having recently interviewed people responsible for placement arrangements for sandwich degree courses at Sheffield Polytechnic, we have been impressed by the frequency with which 'maturity' is stressed as being among the most important things which the students developed during the sandwich placement. This led us to consider the various aspects of maturity laid out by Knowles (1970), who makes a brief but very rich attempt to describe the essential features of maturity. (A slightly adapted version of it appears in Fig. 1). We believe that the parallel with the fundamental meaning of Capability is quite indisputable. But when it comes to relating the dimensions of maturity with competence, and trying to specify competences which would embody these ideas, it is well-nigh impossible.

Figure 1 Meanings of maturation

	From	*Toward*
1	Dependence	Autonomy
2	Passivity	Activity
3	Subjectivity	Taking the views of other people into account
4	Ignorance	Broad awareness
5	Small abilities	Extended capacities
6	Few responsibilities	Many responsibilities
7	Narrow interests	Broad interests
8	Selfishness	Considering the general good
9	Self-rejection	Self acceptance
10	Amorphous self-identity	Clarity of self in work role
11	Focus on particulars	Focus on principles
12	Superficial concerns	Non-petty stances
13	Imitative	Original
14	Need for certainty	Tolerance for ambiguity
15	Impulsiveness	Rationality

(After Knowles, 1970)

b. Critical thinking as a competence

The desirable aspect of personal effectiveness which we are focussing on here is a form of thinking which is critical but also pragmatic (cf Brookfield, 1987).

Students with a purely academic training often seem to exhibit a form of critical thinking which, though rigorous, has a certain air of negativity. This is because it is not linked to the need for action. It has no need to 'compromise' or to be pragmatic. In the work situation, critical thinking of at least as rigorous a standard is ideal. But it must be linked with such necessities as the need for co-operation (and thus the need to communicate, to persuade and to be diplomatic), and the requirement that, in the end, some action will have to be taken—often in a state of uncertainty about its absolute correctness. Thus critical thinking has to be complemented by pragmatism and tolerance for ambiguity.

As with the case of maturity, we find it very hard to see how this kind of personal quality could be specified as a competence. What form would the competence statement take?

It is plain from these examples that the notion of competence does not subsume all the very many kinds of human quality and action which it pretends.

Competence and education

7. The personal 'mental' processes involved in a competence are unclear—making remedical teaching, etc., difficult

As we saw in section 2 above, the notion of competence, being purposely based on a functional analysis of the requirements of occupational roles (TA 1989a), lacks concern for the specific mental processes involved in measured outcomes. But unless the teacher has some view of the kind of activity which is entailed by a competence, it is extremely hard to assist the would-be learner to aquire it.

The lack of concern for context, the frequent inability of the notion of competence to include the range of human activities, etc., necessary to accomplish fully skilled performance, and (perhaps most importantly) the atomistic and additive view which the competence model imposes on activities, makes it a poor guide for the teacher. The teacher must notice tiny incompetences, and see how these hamper the development of other skills. The teacher must spot personal idiosyncrasies in behaviour and thought, and either encourage their development or correct them—or both (depending on circumstances). The professional skills of the teacher are not likely to be assisted by the adoption of a view of action which is so lacking in sensitivity to the radically individual psychologies of the learners.

We have to conclude that a careful educator would be well advised *not* to attempt to teach according to the competence approach.

8. The inclusion, in a teaching programme, of clear-out competences to be achieved may hinder certain kinds of learning and teaching

Peter Elbow (in Grant et al, 1979) asks whether the existence of a predetermined goal is a barrier to creative and high-level educational activities or, to use his own term, 'deep learning'.

> In many situations, nothing is more likely to preclude good thinking than defining terms at the start. For another thing certain kinds of learning seem to

> take place only if people remove their shoulders from the harness of a goal for a while and engage in non-instrumental behaviour. Most wise teachers have a sense of paradoxes involved in learning; how the hardest things are often learned only when students stop trying or stop practising (Grant et al, 1979, p.132).

Essentially, Elbow is asking the question: In some areas of learning is a competence-based approach not only inappropriate but also counter productive—even harmful?

He warns that if competence-based programmes are to be applied in higher education then: 'certain goals must be worked toward with great tact and intelligence and others with a wise indirection. I suspect that the slippery, tricky goals all involve organic development or personal growth.' *(op cit.* p.133)

9. Competence statements can merely be a grammatical form

The evidence suggests that statements of competence can decline in meaning until *any* grammatically permissible statement which begins with some such phrase as 'The candidate is able ...' counts as a statement of competence. Thus, all the following are examples of competence statements: 'The candidate is able to turn (carve) mushrooms' (Hermann & Kenyon, 1987); 'The candidate should be able to originate formats for a data base file' (TA, 1988b); 'The candidate is able to accept responsibility to operate with timescales and budgets of projects' (Lee, Benett & Jackson, 1989); 'The candidate can gain sufficient understanding from a spoken or written communication (in French) to be able to establish its general topic or theme, as well as the content of a variety of simple worded questions or statements which may be included' (University of Massachusetts, 1985a); 'The candidate can apply methods and concepts of sociology to develop recommendations for organisational change' (University of Massachusetts, 1985b).

Now the Training Agency's note for guidance in producing competence statements and their associated performance criteria (TA, 1988b) lays down other design features for statements of competence. They must be descriptions of the outcomes of activities (in contrast to the actual definition of competence cited above); they must be demonstrable, credible to employers, and written in the vernacular of the particular workplace. Yet, in the end, it seems that the major distinguishing feature of competence statements is their grammatical form. Thus it is clear that the specification of competences is not an exercise in applied psychology, nor a matter of curriculum development, nor the development of an assessment technique, but merely an attempt to couch a (fairly arbitrary) description in a very constrained grammatical form. An exercise, in fact, in the manipulation of the English language. As such competence statements are in danger of being empty and uninformative.

10. The grossness or fine-grainedness of competence statements is unspecified

The lack of agreement in the movement about the nature of competences is discussed by Elbow, and the size of a competency is one of the areas he identifies:

> Competences can simply be small or big. There are scores of competences a student must attain in only one nursing course at Mt. Hood Community

> College, in Gresham, Oregon, while at Alverno there are only eight competencies required for the bachelors degree. (in Grant et al, 1979, p.97)

Should a competence statement refer to the gross activity which the individual performs (e.g. decorate a house) or to the microscopic actions and skills which go to make up that gross activity? Decorating, obviously entails tasks like costing the materials, but this task in turn is a complex of a number of skills, perceptions, and pieces of knowledge. Where should the focus of the competence statement(s) be? How is this question to be decided?

Training Agency guidance is to couch competence statements at a relatively molar level: 'a recognisable activity'. Yet the variation which has already been shown in this paper between amazingly broad competences (like using sociological concepts for organisational analysis) and tiny competences (like preparing a particular sort of vegetable), indicates that the issue is by no means clearcut. It has still to be resolved (if a resolution is possible).

11. Competence notion detracts from the link between theory and practice

In work carried out on the broad topic of sandwich degree placements, we have come to conceptualise the theory/practice link in the following way: (i) Work experience can be merely 'lived-through' experience, involving the unreflective day-to-day enactment of the work role; but it can—and should—be 'reflected-on' experience. (ii) Theoretical knowledge can be merely 'detached theory', unconnected with the knower's daily life; but it can—and should—be 'engaged theory'. Thus, the student on placement ought to come to see that theory plays the role of an interpretive resource; it is a system of tools with which to make sense of his or her work experience, so that experience is raised to the level of reflection partly through the employment of theoretical concepts, and theory is related to things which have real significance for the student.

In the sandwich placement, then, theory becomes authentically theoretical, because it is employed in theorising about personally meaningful things, and experience is raised to the level of rational reflection, because the student sees that he or she has tools of thought which make experience open to reflection. Thus the 'application' of theory is a creative activity, illuminating experience on the one hand and rendering thought richer on the other.

In the face of this understanding of the theory/practice relationship, the paltriness of the way thought is treated in the documentation on competence is most disturbing: '... an element of competence may describe such things as the knowledge or understanding which is essential if performance is to be sustained, or extended to new situations within the occupation'. Here theoretical knowledge and understanding has a limited function—keeping things going and helping transfer of skill.

It is perhaps worth commenting here that this mean view of thought is only too evident in the literature of competence itself. There is rhetoric about competence—demanding that training be more fully attuned to the needs of industry and claiming that the competence approach will be instrumental in achieving this aim—and there is guidance about writing competence statements, but between the rhetoric and the cookbook there is barely any thought about the meaning of 'competence' at all.

12. The question of level and competence

The question of the level of attainment which a certain 'competence' implies brings with it a number of problems.

a. Sometimes, there is no indication, in what purports to be a specification of competence, of the level of attainment which is demanded. Training Agency guidance asks for a performance criterion to be associated with each competence, but in practice the specification of level is vague. Very often, the statement of competence and the performance criterion is conflated into a statement such as 'Can participate in (teaching) staff meetings to develop courses, etc' (Lee, Benet & Jackson, 1989). However, there is no clarity in such a statement about the level of ability which the person will have to demonstrate in order to be considered to have achieved sufficient competence.

b. Sometimes we have seen quite clear specification of the level of competence required. For example a catering course programme (using the Canadian DACUM method and quoted in Hermann and Kenyon, 1987) formed the model used for a scheme undertaken at Burton upon Trent Technical College. The elements of competence are very clearly laid out (e.g. 'Split Lobster and other Crustaceans'), and the sequence by which students are supposed to tackle them is made quite explicit. The level of attainment required of a student in order to prepare him for each of a number of catering occupation gradings is also very carefully specified. But not how this is done: A skill such as 'soction fruit' is only required to be performed at level 3 (i.e. performs satisfactorily but requires periodic supervision) by someone who wants to be a commis chef, but someone capable of working as a chef de cuisine would have to be able to demonstrate the capacity to do this task, and also be able to show others how to do it.

Now it seems perfectly clear that what is being done here is not to specify level by providing a scale of increasing skill in performing the task i.e. showing a range of levels of competence—but rather, asking people to combine performance which demonstrates one competence with evidence that they also have another, quite different, competence (in this case 'being able to teach others too'). This shows again the need to be clear about the set of different abilities which are drawn together in a certain competence statement. To pretend that being able to teach something (a complex interpersonal skill) is merely the final level of competence of a relatively clearcut manual skill bucks this issue entirely.

c. In elementary computing courses, it is widely (no doubt rightly) understood that direct practical experience is vastly preferable to the lecture room if the student is to acquire a real, lived understanding of the subject. It happens, then, that students undertaking a computer-based course in the midst of a programme of study at degree level are suddenly faced with the need for simple keyboard skills if they are not to stumble in the process of learning competences which are of a much higher order of intrinsic difficulty.

In our experience, for instance, half-way through a year's course on social science methods, having been introduced to some statistical ideas, students are expected to begin to learn to use a computer package for statistical analysis. Those students who have no experience of a computer or typewriter keyboard are disadvantaged—and, before the nature of the problem was understood and dealt with, often began to complain that 'stats was impossibly difficult'. What was actually difficult was the attempt to do three things at the same time, since the students were expected to acquire an understanding of some quite demanding statistical concepts while coming to grips with the conventions of a computer package, plus trying to master the perceptual and motor skills entailed in accessing the computer through the keyboard.

Now, it can be argued that the three things just listed are at three quite distinct levels of difficulty—the statistical understanding being harder than the grasp of the rules of use of the package, and this being more difficult than the keyboard skills. And colleagues have asserted that the teaching of keyboard, skills should not be part of a degree course, because it does not make sufficiently high an intellectual demand. Taken on its own, it does not. But without what amounts to an elementary competence at the keyboard, students can be thwarted in their attempt to come to terms with the much more intrinsically difficult statistical thinking.

What is obvious again here is that the atomistic treatment of competences—thinking of keyboard skills as unconnected with the learning of higher-level competencies—leads to absurdity. But equally, it would be a mistake to think of the three types of thing-to-be-learned as all being one competence, since they entail quite different mental and sensory-motor processes, each of which needs to be acknowledged as a separate issue if teaching is to be successful.

13. Assessing competences

It has been claimed for the competence notion that it provides an objective approach to assessment which will give a new credibility to qualifications, especially vocational ones. Certainly, the attention which is being paid to the needs of the employer, as the prime 'consumer' of the assessment is an uncontestable advance. Elsewhere (Ashworth and Saxton, 1989) we have discussed the process of assessing student performance and have pointed out that the communication of the assessment to a relevant audience is one of the main considerations: Who is the assessment intended to inform? What are that person's informational requirements? The competence approach aims to set up assessment on purpose to fulfill employers' informational needs.

However, it is the objectivity issue that gives some reason for concern. In our view, the fact that comparatively clear statements of outcome are laid down as assessment criteria (and we set aside for the moment the issue of the intrinsic quality of such statements) has beguiled some into thinking that they are now in possession of a thoroughly reliable and valid assessment scheme. This is a serious misunderstanding.

Logically prior to any question of the reliability and validity of an assessment instrument is the question of the human and social process of *assessing*. Assessing involves the perception of evidence about performance by an assessor and the arrival at a decision concerning the level of performance of the person being assessed. This is a radically interpersonal series of events, in which there is enormous, unavoidable scope for subjectivity—especially when the competences being assessed are relatively intangible ones to do with social and personal skills, or ones in which the individual's performance is intimately connected with the context.

As we have shown elsewhere (Ashworth and Saxton, 1989) the process of assessing is fraught with difficulty. Whether a person's actions will be seen, for example, as showing initiative, pushiness, or uppishness will depend largely on the person's relationship with the assessor, or on the context. And many well-documented, systematic biases inevitably influence assessment, such as the pervasive tendency to attribute responsibility for an event to the person involved, rather than to chance or circumstance. Assessors will see the individual as responsible (creditably or discreditably) for the events which take place within his or her ostensible 'control', regardless of whether they were truly free and chose to act or not. Situational factors tend to be neglected.

We could rehearse a litany of forms of prejudice and types of interpersonal relationship which introduce subjectivity into assessment generally, but suffice it to say that the specification of assessment criteria in competence terms is unlikely to affect the degree of subjectivity in assessment one jot.

Conclusion

The idea of assessing through the use of competence statements and associated performance criteria is superficially attractive since it appears to guarantee a certain level of ability which may be expected to be transferable from the specific situation in which it was acquired. However, the analysis of this paper—preliminary and elementary though it is—shows that the competence notion has been stretched too far.

We are particularly concerned that syllabuses should not be drawn up so as to fit too rigidly into competence-speak, since the idea of competence often fails to refer to the mental processes involved in the production of actions, so the teacher is unable to know, in a deep and useful way, why students or trainees produced the behaviour they did. Thus remedial work, or building on strengths and correcting weaknesses, is not possible if competence-data is the only information available. If *summative* assessment is possible using the competence model, *formative* or diagnostic assessment certainly is not.

The individualism and lack of awareness of social context betrayed by the notion of competence is equally disturbing. But, in general, we believe that 'competence' is the embodiment of a mechanistic, technically-oriented way of thinking which is normally inappropriate to the description of human action, or to the facilitation of the training of human beings. The more human the action, in the sense of being un-mechanical, creative, or sensitive to the social setting, the more inappropriate the competency model of human action is.

References

Ashworth, P.D. and Saxton, J. (1989) *Experiential learning during sandwich degree placements and the question of assessment*, Sheffield Papers in Education Management 82. Sheffield: Centre for Education Management and Administration.

Belbin, R.M. (1981) *Management Teams: Why they succeed or fail*, London: Heinemann.

Boyatzis, R.E. (1982) *The Competent Manager: A model for effective performance*, New York: Wiley.

Brookfield, S.D. (1987) *Developing critical thinkers: Challenging adults to explore alternative ways of thinking and acting*, Milton Keynes: Open University Press.

Further Education Unit (1982a) *Basic Skills*, London: FEU.

Further Education Unit (1982a) *A Basis For Choice*, London: FEU.

Further Education Unit (1985) *Core Competences in Engineering*, London: FEU.

Further Education Unit (1984) *Towards a Competence Based System: An FEU View*, London: FEU.

Further Education Unit (1986) *Assessment, quality and competence, Staff Training issues for NCVQ*, London: FEU.

Grant, G. and Associates (1979) *On Competence*, San Francisco: Jossey-Bass.

Hermann, G.D. and Kenyon, R.J. (1987) *Competence-based Vocational Education, Project Report*, London: FEU/PICKUP.

Hitchcock, G. (1988) *Education and Training 14-18*, London: Longmans.

Knowles, M.D. (1970) *The modern practice of adult education: Andragogy versus pedagogy*. New York: Association Press.

Lee, Benet and Jackson(1989) *Development of Placement and Assessment Procedures in Supervised Work Experience*, Huddersfield Polytechnic/CNAA.

Manpower Services Commission/Department of Education and Science (1986) *Review of vocational qualifications* (final report). London: HMSO.

Royal Society of Arts (1980) *Education for capability*. London: RSA.

Royal Society of Arts (1988) *Facing the challenge of higher education for capability*. London: RSA.

Saljo, R. (1982) *Learning and understanding: A study of differences in constructing meaning from a text*. Goteborg Studies in Educational Sciences 14. Gothernburg: Acta Universitatis Gothoburgensis.

Silver, H. (1988) *Intentions and outcomes*, London: FEU/Longmans.

Training Agency (1988a) *Development of assessable standards for national certification. Guidance note 1: A code of practice and development model*. Sheffield: Training Agency.

Training Agency (1988b) *Development of assessable standards for national certification. Guidance note 3: The definition of competences and performance criteria*. Sheffield: Training Agency.

Training Agency (1988c) *Development of assessable standards for national certification. Guidance note 4: The characteristics of units of competence*. Sheffield: Training Agency.

Training Agency (1989a) *Development of assessable standards for national certification. Guidance note 2: Developing standards by reference to functions*. Sheffield: Training Agency.

Training Agency (1989b) *Development of assessable standards for national certification. Guidance note 5: Assessment of competence*. Sheffield: Training Agency.

Training Agency (1989c) *Development of assessable standards for national certification. Guidance note 6: Vertification or monitoring of assessment practices*. Sheffield: Training Agency.

University of Massachusetts (1985a) *Foreign language cluster competences*. Boston: College of Public and Community Service.

University of Massachusetts (1985b) *Sociological practice competences*, Boston: College of Public and Community Service.

Work-Based Learning Project (1989) *Guide to work-based learning terms*. Bristol: Further Education Staff College.

22

THE RISE OF COMPETENCY-BASED EDUCATION: A DECONSTRUCTIONIST ANALYSIS

KRIS MAGNUSSON AND JOHN OSBORNE

K. Magnusson & J. Osborne, 'The rise of competency-based education: A deconstructionist analysis', *Journal of Educational Thought*, vol.24, no.1, 1990, pp.5–13.

In this paper, the authors present a deconstructionist perspective of Competency-Based Educational (CBE) technology. First, the historical context of CBE growth is traced with an emphasis on political and philosophical considerations. This context is then used as a focal point for identifying the mechanisms of power and knowledge that form the constituent elements of CBE technology. The authors conclude with a discussion of the impact of the implementation of CBE technology at the personal, institutional, and social levels.

Competency-Based Education (CBE) is a form of educational technology that emphasizes the acquisition of specific, predefined skills. The CBE movement has been gaining momentum in North America, and, not surprisingly, the debate over the efficacy and role of CBE systems within education has also become heated. The relative merits of CBE technology have been described elsewhere (Burns and Klingstedt, 1973; Buttram, Kerschner, and Dusewicz, 1985; Herrscher and Watkins, 1980; Grant et al., 1979), and need not be elaborated on here. In this paper, we will be exploring how and why CBE programs have come to take such prominence in educational thinking. The examination will be conducted from a deconstructionist perspective (Foucault, 1980), in which the concept of CBE will be 'deconstructed' in order to identify its constituent elements. We will first set the historical context which fostered the growth of CBE, and follow with an analysis of the technology itself in terms of the bases of knowledge and power that it incorporates.

A historical context for CBE development

The specific conditions governing the rise of the CBE movement are well documented (Burns and Klingsted, 1973; Buttram, 1985; Grant et al., 1979; Herrscher and Watkins, 1980; Nickse, 1981; Polk, 1982; Trivett, 1975); however, the context for that development is less clearly identified. To establish such a context, we will first consider instrumental rationality, the power theme in education prior to 1950, and then focus upon three forces of educational critique which have dominated educational reform since the middle of this century: the liberal or humanistic movement and the response to humanist reform by both critical (left-wing) and conservative (right-wing) theorists.

Prior to the 1950s, schooling in Western society could be characterized by two dominant power themes. The first theme, which to this day permeates most of what we call 'education,' is that of instrumental rationality. The emphasis in education was (and, to a large degree, still is) on technique; belief in the scientific method with its focus on mode of analysis and acquisition of fact was sacrosanct. This emphasis upon *how* rather than *why* resulted in little or no thought being given to the social consequences of the learned activities or methods. In the words of Gibson (1986) instrumental rationality 'is the cast of thought which seeks to dominate others, which assumes its own rightness to do so, and which exercises its power to serve its own interests' (p. 8). The interests being served are those of method and efficiency and of the natural science model for education. Thus instrumental rationality was the mechanism of choice for education.

The second power theme reflects the generally-held public perception of the role of schooling in society. In this role, schools have been called 'wish mechanisms' (Aronowitz & Giroux, 1985, p. ix). Education was a panacea for all of society's ills; it was viewed as the means to personal success, and the process for maintaining social stability and order. Such views were founded upon an implicit belief in environmentalism in which individuals are merely products of their environment and thus cannot be held personally responsible for their education.

This second power theme—the lofty ideals for education—began to supersede technique as the dominant force in policy and planning. In the early 1960s humanistic educational reformers began to question the ability of the scientific approach to meet the goals of social and economic transformation. The goal of the humanistic reform movement was to utilize schools as a means of obtaining social equality. Aronowitz and Giroux (1985) have claimed that 'the fundamental impulse motivating education reform was how to help the excluded get a piece of the action' (p. 2). During this time a number of 'alternative schools' sprang up, with the intent of 'democratizing' schooling; most of these attempts met with only limited success (Center for New Schools, 1976).

The apparent failure of the humanist movement has led to renewed calls for educational reform from both left and right wing critics. Gibson (1986) noted that the critics of education, in attempting to explain the impact of education, tended to focus on one of three levels: personal/interpersonal, institutional, and structural. A truly effective critique must, of necessity, encompass all three levels.

Marxist economic theory dominates the leftist position and forms the basis for the Critical Theory school of thought (Sarup, 1983; Gibson, 1986). This position essentially views current educational institutions and technologies as serving two structural purposes: the reproduction of economic relationships, and the reproduction of state power (Bowles & Gintis, 1976; Karabel & Halsey, 1977). Radical educators argue that the claims of liberal (humanist) educators—namely, that education can serve as a liberating force to the disadvantaged by altering their power base—are unfounded because they do not account for the larger-scale structural functions of education in general. Giroux (1983) summarized the radical position as arguing:

> that the main functions of schools are the reproduction of the dominant ideology, its form of knowledge, and the distribution of skills needed to reproduce the social division of labor. In the radical perspective, schools as institutions could only be understood through an analyzis of their relationship to the state and the economy … the underlying significance of schooling could only be revealed through analyzing how schools functioned as agencies of social and cultural reproduction. (pp. 257-258)

Right-wing conservative critics also responded to the humanist movement in education. Their basic stance is reflected in the oft-heard back-to-basics approach to education (Weber, 1975; Morgan and Robinson, 1976; Brenner, 1979); organizations such as The Council for Basic Education (1975) and the Genuine Education Movement (Morgan & Robinson, 1976) gained in popularity and political impact in the 1970s. According to Aronowitz and Giroux (1985), the rightists' 'major concern is the changing world economy and the new divisions of labour' (p. 3). Faltering productivity (and 'profit-ability') in the labor force are blamed on the lack of preparation workers receive in schools. Weber (1975) identified four additional reasons for returning to the three-R approach: the rising costs of schooling; the disappointing results of liberal/humanist reform efforts; the deterioration of discipline in the schools; and disillusionment with educational innovations such as the 'new math.' He also argued that the primary role of schools was to foster intellectual, not social, development.

To counter the perceived regressive trends in education, the conservatives have demanded revitalized curricula and more efficient systems of managing the process of education while concomitantly calling for a reduction in resource allocation to schools. Clifton Fadiman (Council for Basic Education, 1975), who at the time was a member of the Board of Directors of the Council for Basic Education, summarized the conservative philosophy: 'We cannot afford bypaths. We cannot afford pleasure. All education, Aristotle tells us, is accompanied by pain' (p. 48). In arguing for educational change, Brenner (1979) acknowledged that 'American public education is essentially a conservative institution and … no real reforms can be effected unless they are carried out within a conservative framework' (p. 27). His proposals for reform were based on a policy in which the state would only assume responsibility for 'basic' education, with all other 'frills' obtainable via a voucher system.

There is a surprising similarity in both the left and right positions: both argue that the major (structural) function of schools is to reproduce social and economic order. Aronowitz and Giroux (1985) point out that 'most reformers [did not] ask the question about the external and internal orientation of school knowledge since they already assumed that curriculum should be articulated with the labor market' (p. 2). In terms of their relative effects on educational policy and planning, however, there are two fundamental differences. The first reflects a value orientation. The conservative position asserts that it is desirable, or even necessary, to maintain current social order, whereas the radical left views the structure of domination and class repression as anathema. However, given generally acceptable (or tolerable) social conditions, social inertia ensures that the conservative position will dominate. In other words, maintenance of the status quo is easier than radical change.

The second major difference between the two schools of educational criticism lies in their respective solutions to the apparent failure of the schools.

Conservative critics respond with specific strategies (for example, back-to-the-basics curriculum, improved management strategies, fiscal responsibility, etc.). In contrast, the radical left is unable to present specific, socially acceptable strategies for reform; as Aronowitz and Giroux (1985) noted, 'since left morality prevents a serious consideration of alternatives under nonrevolutionary circumstances, it appears to be devoid of possibility' (p. 6). In other words, the left provides no alternatives or directions other than a massive overhaul of the social structure in which education is embedded.

The impact of the conservative critique became more pronounced during the late 1970s and early 1980s with the general rise of conservative political ideology in Britain and North America. Efficiency in education and the demand for a skilled labor force that would be able to meet changing market demands became hallmarks of government funding. In England, Gibson (1986) noted that special funding was provided to schools that promoted vocational content, while more traditional (public) schools were left to fend for themselves; in the United States, the federal government set up a large research fund in the mid-seventies for the purpose of examining and funding skill-based programs in postsecondary education.

Concomitant with rising conservative political ideology was a more vocal and demanding consumer orientation towards education. Western society in general and North America in particular has been experiencing what Naisbitt (1984) calls a major restructuring. People were scrambling to keep pace with the increasing demands placed on them by technological and social change, and education was viewed as one of the key support systems. There was a sense of dissatisfaction among the general public (no doubt fuelled in part by conservative rhetoric) that was expressed in demands for an improved system of education. This was especially the case for postsecondary education, with greater numbers of adults returning to school (Dennison, et al., 1982; Devereaux, 1984). People wanted to improve their station in life, but were burdened by responsibilities of job and family; education as a wish mechanism is still a dominant theme today. To meet these demands, the educational consumer demanded greater access to educational services in a format that would take into consideration a variety of external demands on time and that would provide 'relevant' material to propel the individual on in life. The economic depression of the times dramatically altered the 1960s conception of relevance; as Aronowitz and Giroux (1985) put it, 'at a time when nearly everyone is anxious about his/her place in a rapidly shifting job market, relevance has come to mean little else that job preparation' (p. 1).

The demands for educational reform on both a populist and political front could be summarized in four terms: relevance; accessibility, flexibility, and accountability. It was at this time and with the purpose of meeting these demands that Competency-Based Education gained popularity.

CBE as technology

For Foucault, power and knowledge are inseparable and integral components of technology; he defines technology as the joining of power and knowledge (Rabinow, 1984). An analysis of a technology such as CBE must therefore include three elements. First, there must be an examination of the actual knowledge base (i.e., the content) upon which the technology is built. The purpose of this examination is to identify the specific theoretical concepts which serve to ground the technology. Second, the power base that propels the knowledge must be identified. Knowledge in and of itself is relatively inert; it requires power to transform an idea into action. Third, the nature of the relationship between the knowledge base and the power base must be identified. In other words, the knowledge base describes what the technology is about, the power base demonstrates why it comes to be implemented, and the relationship between the two identifies how it comes to be implemented.

The knowledge base for CBE has been well-documented elsewhere (Block, 1974; Bloom, 1971; Buttram, 1985; Delker, 1982; Grant et al., 1979; Herrscher and Watkins, 1980; Houston, 1974) and need only be summarized here. Essentially, CBE has melded some of the leading natural science-based theories of learning (i.e., the work of Mager, 1975; Carroll, 1978; Bloom et al., 1971; Bandura and Walters, 1963; Glaser, 1962; and Gagne, 1985) into a cohesive framework for instruction. Thus the knowledge base for CBE can be characterized as being an amalgamation of the work of several leading learning theorists; it contains elements of programmed instruction, clearly specified behavioral objectives, hierarchical methods of knowledge acquisition, and social learning techniques. It is important to note that CBE programs do not represent innovative directions in theoretical development, but rather an innovative means of transmitting existing knowledge.

The power that fuelled the growth of CBE programs can be traced to two major sources. The first source represents a product of the political ideology and populist sentiments towards education documented earlier. The structure of the implementation of the technology is such that it at least attempts to provide for each of the four major thrusts of educational reform. Firstly, it is accountable in that it maximizes existing resources and provides for a more efficient (i.e., cost-effective) system of management. Secondly, it is relevant in that the content of the subject matter is determined by the demands of the market that ultimately will be absorbing the graduates (students feel better equipped to face the job market upon completion of their program and employers feel that the graduates will be immediately productive on the job). Thirdly, it is accessible in that entrance to a program or institute is not determined by level of formal education, but by the possession of requisite skills or knowledge. Fourthly, it is flexible in that it assumes that students will bring a variety of different learning styles to the learning situation, and allows for students to move through programs at their own pace.

The second power source for CBE implementation is more subtle than the first (i.e., the ability of the knowledge base to address major populist issues in educational reform). A major source of CBE's power lies in the fact that the technology can be implemented to sustain the existing sociological superstructure in which it is embedded. Unlike the reform proposed by the radical left (e.g., the Marxist or Critical theorists), the implementation of CBE does not require major social or structural changes; it can be easily incorporated into existing educational structures. In fact, CBE tends to reinforce the existing social status quo rather than promote change. For example, the content for a CBE program is typically determined by a panel of experts in the field, and is monitored by an advisory panel, both of which are also usually potential employers. By controlling the content of instruction, the people who are in a position to control the labor market are assured a steady supply of individuals trained in the philosophies and techniques of that market. Thus CBE could be seen as a means of maintaining the status quo, and not as a means to social reform. As mentioned earlier, concepts that can be seen to maintain or even enhance the status quo will always have an easier time of securing the resources to be implemented. The implementation of CBE programs has an added advantage at the political level in that it has the appearance of radical reform. The changes it makes, however, are at the personal and institutional level; the structural level is reinforced, rather than reformed, by its implementation. Individuals experience a more flexible and accessible learning environment and institutions need to revise methods of student selection, re-allocate resources for increased individualized learning, and modify the role of instructors (managers of learning, rather than teachers). However, the social structure remains unaffected; CBE is merely a more efficient method of developing the skills that society needs in order to function.

The power-knowledge relationship governing the application of CBE may be more complex than the above cursory view would suggest. For Foucault the educational setting is one arena for the expression of disciplinary technology, whose aim 'is to forge a docile body that may be subjected, used, transformed and improved' (in Rabinow, 1984, p. 17). Thus CBE may be seen as a form of disciplinary control. Through the rise of bio-power, in which the state enhances its power base by assuming guardianship of matters deemed to be public welfare, the state has assumed responsibility for education (as one form of public welfare). It would be natural, therefore, for the state to implement mechanisms of control that would at once satisfy the demands of bio-power while concomitantly ensuring the continuance and enhancement of the overall social structure.

The structure of CBE as a technology, however, may contain some aspects that are more in line with humanistic traditions than conservative ideology. The overall goal of CBE is to provide an efficient and effective means for the identification and development of skills that people will need in order to be more productive, satisfied members of society. During times of economic difficulty that focus will be predominantly on the acquisition of those survival skills which enable individuals to secure and maintain employment. However, if those base needs are met, or larger, more global concerns such as social reform take precedence, the nature of the skills to be developed will change. CBE as presently structured has the potential for removing decisions about program content (i.e., what knowledge is to be taught) from the bureaucrats and placing it in the hands of the people. Thus the politics of control will be a major factor in the rate in which CBE programs become implemented, and will determine the kinds of programming which will be acceptable for CBE implementation. Currently, CBE is being introduced primarily in technical areas (carpentry, electronics, drafting, etc.), but has made little headway in university settings where the acquisition of conceptual, critical, and creative thinking skills are supposedly developed.

Other difficulties from the conservative perspective become apparent when one considers the techniques of control. In relating Foucault's concept of disciplinary technology (i.e., means of establishing and maintaining control) to education, Sarup (1983) has noted that there were three conditions for the implementation of 'discipline': the discipline is cellular (people are categorized into age-grade units); it controls activity, by use of timetables, etc.; and it regulates physical activity in a temporal sense, by breaking down training into a series of distinct stages. CBE systematically seeks to avoid, as much as possible, each of these disciplinary technologies. The mechanism of control in CBE is twofold: orientation to end products, and reliance on the individual's motivation to attain that end product. How the individual attains the skills is largely irrelevant. These control mechanisms place a much greater emphasis on the role of the individual for learning, and de-emphasizes the traditional methods of maintaining disciplinary control mentioned above. Thus, although CBE tends to be product-oriented, it allows for increased variability of individual process; the individual's experience of education takes on a more significant role.

The goal of conservative ideology in education (and politics) is one of normative rationality; that is, attempts are made to maintain the status quo. In this matter, CBE is something of a paradox. On the one hand, it represents a break from the normative rationality of educational technology by forcing both individual learners and institutions to reconsider the means by which learning is achieved. It further deviates from the educational norm by assuming that virtually anyone, given sufficient time and opportunity, can acquire the specified content. This, in essence, results in fewer of Foucault's objectification categories; people become less a product of specific categories and more a product of general competence. On the other hand, CBE is often being implemented for the purpose of achieving normative rationality in a social context by establishing a structure which ensures a relatively steady supply of labor to fill the demands of the economy. Thus, the paradox is that while CBE is implemented in order to ensure some degree of normative rationality, it possesses characteristics which may result in a deviation from, not a maintenance of, the status quo. Such a deviation, however, depends upon a major shift in public focus; because such a major shift is relatively unlikely given the mechanisms of fiscal and political control, the conservative position is relatively safe.

Conclusion

The questions about the ultimate social impact of the implementation of CBE technology remain: Is it a technology of liberation or enslavement? The answer, of course, will depend upon a person's ideological orientation. In a Foucaultian sense, such questions need to be rephrased in terms of the power-knowledge relationships that govern the technology. In this sense, CBE can be seen as a technology of convenience; it fills the requirements of both populist and, more importantly, political ideology in our present time. The nature of the technology is such that it is very appealing to both on a surface level, but its deeper implications may be cause for consternation among the more conservative elements. For this reason, implementation has been slow in coming; it is, however, unlikely to be halted altogether. The ultimate implementation of the technology may depend on the extent to which populist movements (which seek to make education more flexible and accountable to social needs) gain power, and the degree to which the conservative element (typically those in government and private industry who seek normative rationality) can benefit from even limited application of the technology. As mentioned earlier, the technology has a direct impact at the personal and institutional level. However, at a social level, CBE will more likely reflect structural change than promote it, and as such has greater potential to serve the needs of normative rationality. Thus the implementation of CBE gives the appearance of dramatic educational reform while maintaining the status quo.

References

Aronowitz, S. & Giroux, H.A. (1985). *Education under siege: The conservative, liberal and radical debate over schooling*. South Hadley, MA: Bergin & Garvey.

Bandura, A. & Walters, R.H. (1963). *Social learning and personality development*. New York: Holt, Rinehart and Winston.

Block, J. H. (Ed.). (1974). *Schools, society, and mastery learning*. New York: Holt, Rinehart and Winston.

Bloom, B.S., Hastings, J.T. & Madaus, G.E. (1971). *Handbook on formative and summative evaluation of student learning*. New York: McGraw-Hill Co.

Bowles, S. & Gintis, H. (1976). *Schooling in capitalist America: Educational reform and the contradictions of economic life*. New York: Basic Books.

Brenner, C. (1979). Reform in a conservative framework. *Phi Delta Kappan, 61*(1), 27-29.

Burns, R.W., & Klingstedt, J.L. (Eds). (1973). *Competency-Based Education: An Introduction*. Englewood Cliffs, NJ: Educational Technology Publications.

Buttram, J.L., Kerschner, K.M., & Dusewicz, R.A. (1985). *Evaluation of Competency-Based vocational education final report*. (ERIC Document Reproduction Service No. ED 262 177).

Carroll, A.D. (1978). *Learning by objectives: A teacher's guide*. London: Hutchinson.

Center for New Schools (1976). Strengthening alternative high schools. In *Education, Participation and Power: Essays in theory and practice*. Cambridge, MA: Harvard Educational Review (Reprint Series No. 10).

Council for Basic Education. (1975). The slayers of Dewey-eyed educational dragons. *American School Board Journal, 162*(8), 47-48.

Delker, P.V. (1982). *Adult competence: The key to productivity*. (ERIC Document Reproduction Service No. ED 224 917).

Dennison, J., Forrester, G., & Jones, G. (1982). A follow-up study of career technical students from the B.C. community colleges and institutes. *Canadian Vocational Journal, 17*(4), 18-29.

Devereux, M.S. (1984). *One in every five: A survey of adult education in Canada*. Ottawa: Statistics Canada.

Foucault, M. (1980). *Power/knowledge*. Brighton, England: The Harvester Press.

Gagne, R.M. (1985). *The conditions of learning and theory of instruction* (4th ed.). New York: Holt, Rinehart and Winston.

Gibson, R. (1986). *Critical theory and education*. London: Hodden & Stoughton.

Giroux, H.A. (1983). Theories of reproduction and resistance in the new sociology of education: a critical analysis. *Harvard Educational Review, 53*(3), 257-293.

Glaser, R. (1962), *Training research and education*. New York: John Wiley and Sons.

Grant, G., Elbow, P., Ewens, T., Gamson, Z., Kohli, W., Neuman, W., Oleson, V., & Reisman, E. (1979). *On competence: A critical analysis of Competency-Based reforms in higher education*. San Francisco: Jossey-Bass.

Herrscher, B.R., & Watkins, K. (1980). *Competency-Based Education: An overview*. (ERIC Document Reproduction Service No. ED 200 268).

Houston, W.R. (Ed.). (1974). *Exploring Competency-Based education*. Berkeley, C.A.: McCutchan.

Karabel, J. & Halsey, A.H. (Eds.). (1977). *Power and ideology in education*. New York: Oxford University Press.

Mager, R.F. (1975). *Preparing instructional objectives* (2nd ed.). Belmont, CA: Fearon Publishers.

Morgan, M.T. & Robinson, N. (1976). The 'back to the basics' movement in education. *Canadian Journal of Education, 1*(2), 1-11.

Naisbitt, J. (1984). *Megatrends*. New York: Warner Books.

Nickse, R.S. (1981). *Competency-Based adult education—applied*. (ERIC Document Reproduction Service No. ED 203 158).

Polk, B.B. (1982). *Competency-Based vocational education—Analysis of an educational bandwagon and implications for Hawaii's community colleges*. (ERIC Document Reproduction Service No. ED 224 550).

Rabinow, P. (1984). *The Foucault reader*. New York: Pantheon.

Sarup, Madan. (1983). *Marxism/structuralism/education*. London: The Falmer Press.

Spady, W.G. (1977). Competency-Based Education: A bandwagon in search of a definition. *Educational Researcher, 6*(1), 9-14.

Trivett, D.A. (1975). *Competency-Based programs in higher education*. (ERIC Document Reproduction Service No. ED 118 023).

Weber, G. (1975). Back to "the basics" in schools: Here's the case for pushing the current trend into a landslide. *American School Board Journal, 162*(8), 45-46.

23

COMPETENCY-BASED SKILLS TRAINING: DOES IT LIMIT CREATIVITY IN THE PARTICIPATIVE WORKPLACE?

JEFFREY L. GOSSETT, TIMOTHY A. KANE AND DENNIS G. TESOLOWSKI

J.L. Gossett, T.A. Kane & D.G. Tesolowski, 'Competency-based skills training: Does it limit creativity in the participative workplace?', *Performance and Instruction*, Feb., 1991, pp.16–19.

Since the 1960s business and industry have successfully used competency-based and performance-based training to develop their workers' basic job skills for production. With the increased emphasis today for participative management to support competitiveness and the workers' need for more autonomy, businesses and industries have a dire need for their employees to become skilled information processors exercising creativity and problem solving. Many managers and human resource development (HRD) professionals are questioning the compatibility of creativity and competency/performance-based instruction. Many believe that competency/performance-based instruction, with its emphasis on a structured training process, limits or diminishes workers' creativity. Consequently, the ultimate concern is that the success of participative management may be in serious jeopardy.

Competency/performance-based training does *not* diminish or limit creativity, but instead actually supports and enhances it. Moreover, participative management's success may very well depend upon the role or influence of competency-based instruction (CBI).

Participative management is a relatively new strategy designed for companies to harness the knowledge, skills, and insights of their workers for product and systems improvement in areas such as quality. An underlying assumption by many companies is that given the opportunity to participate in the decision making process, employees will use their own unique knowledge, skills, and experiences in a 'team' effort to redesign or remake and improve current organizational situations and structures. However, as reported by Walton (1987), many corporations in the United States have learned the hard way that it is difficult to implement and maintain innovative managerial strategies and procedures. Corporate entities have found that quality circles, management-by-objective programs, and self-managed work teams are doomed if they are introduced without supportive changes in training, rewards, and selection procedures.

Other management and quality experts such as Peter Drucker, Philip Crosby, and William Deming have recommended that participative management be aligned with other business strategies, systems, and structures. Specifically, General Electric, Ford, Florida Power & Light, Milliken, and Motorola have proven that a specific training plan is critical to the success of quality and participative management. Particular skills in applying various tools and analytical processes used in participative management have been accomplished successfully through competency-based or performance-based instruction.

Importance of the creative process in participative management

The specific concern over whether CBI negatively impacts the creative process in participative management is worthy of examination. This potential argument most likely arises from the perception that competency-based training, with its methodology of describing in detail what must be done and known to complete a given segment of work (a task), is somehow akin to 'Taylorism' (F.W. Taylor's scientific methods). Certainly a similarity of both Taylorism and competency-based instruction methodologies is that they seek to describe work through analysis. A key difference, however, is that Taylorism seeks not only to describe work, but to design more efficient ways to complete work by dividing jobs into smaller parts and then exerting control over each part. Unfortunately, proponents of Taylorism have possibly taken their efforts too far with jobs divided into small, mindless, repetitive tasks requiring little or no thinking, much less creativity. Structures such as these do not support a participative environment.

Proponents of this issue tend to conclude erroneously that CBI leads to the creation of 'unthinking' workers performing mindless tasks by rote. However, these individuals may not realize that competency-based instruction and Taylorism are radically different. The critical difference is that CBI methodology does not seek to divide or limit; it simply describes how workers performing a job actually do it and what they must know to do it effectively.

The definition of creativity

Being creative on the job is but one of many skills required of today's workers. In participative management, being creative is only one skill utilized when completing the steps of data collection, analysis, and problem definition. Creativity here is defined as 'closing the gap between the problem situation and the desired outcome' (Honig, 1987). This operational definition applies well to participative management and specifically to problem-solving.

One of the primary goals of participative management is to improve the current situation to a higher level of quality. Workers therefore must have a high level of domain-specific knowledge and a broad domain of procedural skills to process information and solve problems. The most difficult problems are those that have not been dealt with on previous occasions. In this situation,

> ... the pattern of symptoms will be interpretable only through comprehensive understanding (an appropriate store of declarative knowledge or an appropriate mental model) and a well-developed set of diagnostic skills (appropriate procedural knowledge). (Cooke & Howell, 1989)

Cohen (1987) stated that many people believe that creativity involves the production of something new or very rare and of value to the world. She also stated that endeavors of this magnitude are reserved for the last two levels on the continuum. This comment was in reference to Feldman's model entitled 'Continuum of Adaptive Creative Behaviors.' Cohen refers to these types of creativity as 'mature creativity' because they involve well developed systems and a thorough mastery of a field.

The criticality of mastery

These last two levels of the Continuum of Adaptive Creative Behaviors are respectively entitled the 'Discipline-Based' and 'Idiosyncratic' levels. Both levels require, according to Feldman, that the individual has mastered a discipline's subareas to an expertise level.

Mastery rests upon the difference between novice and expert problem-solving. Significant differences have been identified between expert and novice problem solvers in their cognitions and processes (Johnson, 1989; Schoenfeld, 1982). Experts generally provide abstract causes and constraints associated with a problem. They spend considerably more time in defining the problem, its orientation, and its classification (Pryzwansky & Hanania, 1986). Specifically, 'expert-novice differences in perception are rooted in differences in expertise (training and experience) ...' (Schoenfeld, 1982). CBI is designed to guide the educational or training process toward mastery by providing basic critical skills and knowledge which are necessary in the field.

CBI provides foundational schemata toward mastery

By providing the basic knowledge and skills for workers to perform their jobs, competency-based instruction provides the foundational schema upon which 'field' or life experiences can be processed, stored, and applied. Learners advance from knowledge schemata to procedural ones through 'tuning' by which the schema is modified and refined into heuristics. The mastery process is strengthened when additional training, through formal instruction, assists the worker with the process of integrating and 'restructuring' their experiences into new schemata. This restructuring, meaning the adding and modifying of schemata, is critical for workers to then broaden their 'problem space' construction. Problem space definition and construction is a very critical step in problem solving (Newell & Simon, 1972). Specifically, '... as experience leads to better problem solving, the quality of problem representation is expected to improve with corresponding improvement in problem perception' (Schoenfeld, 1982).

Johnson (1989) reported that the difference between expert and novice 'trouble shooting' was in both the quality of the information required and the hypothesis generated. The findings of his research attributed these outcomes to experts' superior selection skills. These skills, which were developed through years of work and educational experiences, were reflected in the experts' depth and breadth of knowledge and their ability to organize it.

The success of participative management requires mastery of all relative skills and knowledge

If this assumption is true, then participative management will not work as intended if employees do not possess the high level of skills required in a participative environment. An example from the pulp and paper industry was highlighted in Zuboff's *In the Age of Smart Machine*. Zuboff described microprocessor-based sensors and control technologies on paper machines that were not being used to their fullest potential. She explained that when managers analyzed operators' skills they found that the operators did not possess sufficient skills to be able to incorporate the technology into their daily jobs. Zuboff identified three causes for this situation:

> ... performance based qualifications had not been completed, additional training material was need, and operators did not understand how the (technology) calculated most of its key variables. A lack of operator understanding was evident in each of the major problem categories.

From this example it is easy to see that these operators could not have functioned effectively as a creative, self-regulating work group. This speculation is attributed to the fact that they lacked the required skills and knowledge.

Although training programs, regardless of their effectiveness, rarely result in employees being developed to a mastery level in the first few days on the job, they can effectively provide the basics or foundation. Upon this foundation the worker or learner can add experiences, acquire additional integrative training, and develop along a continuum from unskilled to skilled worker. Ideally, the worker progresses along the continuum to the level of expert.

Only when employees reach this high level are they able to apply their talents effectively and creatively to improve a process, a product, or the workplace. Skills and knowledge are prerequisites for effective and involved employees. Training programs developed through the competency-based process deliver these learnings efficiently and effectively.

Utilizing CBI to facilitate mastery

Competency-based instruction, through its task analysis stage, defines specific instructional performance objectives. The task analysis process, so essential to CBI in defining and delineating cognitive, psychomotor, and affective behavioral outcomes necessary to satisfactory performance of a job or task, is based upon the various taxonomies of Gagné, Bloom, Glazer, and Briggs. These taxonomies define and support the acquisition of learning in manageable parts and processes through appropriate levels of cognitions. These cognitions are the complex schemas upon which heuristics and problem space can be developed. As already discussed, heuristics and problem space are critical parts of problem solving.

Furthermore, Greeno (1983) suggested in his study on problem-solving of geometric proofs that educational objectives uncovered by using cognitive task analysis are not necessarily restricted to the specific tasks initially analyzed, but are transferred to other similar domains. This suggests that the enlargement of problem space in general is positively affected by CBI.

Competency-based instruction, as mentioned earlier, can be utilized to define specific tasks and procedures and to teach employees to perform efficiently and effectively in a participative workplace. Beyond developing the employee's basic level (novice) of satisfactory performance, CBI can also be used to facilitate the development of the novice to expert by assisting each employee with the process of integrating future work experiences and training.

In particular the task analysis stage may play a critical role in helping to identify the expertise or mastery level within a discipline. Gitomer (1988) advocated that managers or HRD professionals should begin with a theory of expertise for a problem domain that can be used to isolate precise deficiencies in an individual's mental model of a device. This would facilitate being able to determine whether an individual's procedural skills are weak because of a lack of knowing how to do something or because of inefficiency in executing or assessing that knowledge under certain conditions.

Conclusion

Creativity, the ability to solve problems, relies upon the individual's ability to process a rich amount of information so as to identify effectively the problem space. Participative management requires a group of employees to be efficient and effective information processors. These employees as effective information processors must be content experts who can creatively define and close the gap between the existing situation and the desired situation. Consequently, competency-based instruction not only supports participative management, but also is critical to its creative success.

References

Cohen, L.M. (1987). *Developing children's creativity thinking, and interests*. Eugene, OR: University of Oregon, Oregon School Study Council.

Cooke, N.J., & Howell, W.C. (1989). Training the human processor. In I.L. Goldstein (Ed.), *Training and Development in Organizations (pp.* 140-170). San Francisco, CA: Jossey-Bass.

Feldman, D.H. (1980). *Beyond universals in cognitive development*. Norwood, NJ: Ablex.

Gitomer, D.H. (1988). Industrial differences in technical troubleshooting. *Human Performance, 1,* 111-131.

Greeno, J.G. (1983). Forms of understanding in mathematical problem solving. In S.G. Paris, G.M. Olson, & H.W. Stevenson (Eds.), *Learning and motivation in the classroom,* pp. 83-111. Hillsdale, NJ: Erlbaum.

Honig, B.E. (1987). *Creativity: It's practical applications … Learning the rules of creative action,* pp. 91-96. Paper presented at the 4th Annual Conference on Creativity, Innovation and Entrepreneurship, Los Angeles, CA.

Johnson, S.D. (1989). Trouble shooting performance. *Journal of Industrial Teacher Education, 26,* (3), 1937.

Newell, A., & Simon, H A. (1972). *Human problem solving*. Englewood Cliffs, NJ: Prentice-Hall.

Pryzwansky, W., & Hanania, J.S. (1986). Applying problem solving approaches to school psychological reports. *Journal of School Psychology, 24,* (2), 133-141.

Schoenfeld, A.H. (1982). Problem perception and knowledge structure in expert and novice mathematical problem solvers. *Journal of Experimental Psychology, 8,* (5), 484-494.

Walton, R.E. (1987). *Innovating to compete: Lessons for diffusing and managing change in the workplace.* Boston: Harvard Business School Press.
Zuboff, S. (1988). *In the age of the smart machine.* New York: Basic Books.

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COMPETENCY AND THE PEDAGOGY OF LABOUR

JOHN FIELD

J. Field, 'Competency and the pedagogy of labour', *Studies in the Education of Adults*, vol.23, no.1, 1991, pp.41–52.

Like all educational practice, vocational education can be seen as possessing a treble function. Evidently it is an agency of socialisation, (re)producing a labour force with appropriate skills, knowledge and attitudes; it is patently also an agency of selection, offering qualifications which distribute the population between different roles. And vocational education shares with the rest of the educational system the function of generating new knowledge and skills, and even new frameworks of meaning, which enable the institutions of human activity to change and survive; in this third sense, it is future-orientated and even emancipatory. What is notable about recent reforms is that many situate work itself—the process of human labour—at the centre of the learning transaction, at a time when work is losing its centrality in the values and aspirations of western culture.

In Britain, for example, the national system of vocational qualifications is being organised under the leadership of the newly-created National Council of Vocational Qualifications. Established in the wake of a 1986 Review of Vocational Qualifications (undertaken by the Department of Education and Science and the then Manpower Services Commission), the NCVQ is charged with bringing all vocational qualifications within a national framework, whose standards are described in terms of 'competence', and divided by levels (Level 1 reflecting elementary skills, Level 5 incorporating professional and graduate qualifications). Competences for different sectors will be defined by employer-led Lead Industry Bodies for each major sector. For Levels 1 to 4, NCVQ was expected to have a fully operational framework by 1991.[1]

Why is the role of qualifications within the labour market now changing on such a wide scale? It seems to me that in two of the three functional areas of education, the legitimacy of the existing vocational qualification system has broken down. It no longer commands credibility as a means of sorting and distributing the population; and it is now impossible to create a consensus about the desirable future towards which vocational educational inputs will lead us. Competency-based vocational education has been widely canvassed in Britain and Australia as a secure basis for a system of vocational qualifications that is accurate, efficient and 'relevant to industry's needs'. Most British discussions of competency-based education have been content to accept these claims, and added to them the view that it will also help secure greater equality of opportunity; much of the literature is concerned with exploring the best technical means for achieving a competency-based system that meets such goals. This paper is an attempt to situate the competency movement within a wider context; its seeks to establish that the competency movement is the latest refinement in what might be called 'the pedagogy of labour'—that is, the sponsoring of structured and planned learning from the activity of work, and for work. What is new about these moves is that they attempt to develop a 'pedagogy of labour' that can be applied comprehensively—cutting across different occupations and industrial sectors, and across what have previously been considered distinct age ranges and different and separate levels and domains of skill and knowledge.

These developments appear to mark a new stage in government-dominated attempts to match the functions of socialisation and qualification with what is perceived as rapid changes within the workplace and in the organisation of work. The main thrust here, then, is to explore relations between the competency movement and changes in the labour market. The labour market does not, though, operate in a vacuum; the implications of the competency movement cannot be understood without also exploring changes in the wider framework of societal values that have accompanied the shift towards post-industrial status; competency-based qualifications are seen as promoting not only supposedly desirable economic goals but also the subordination of labour in a society where the unquestioned status of the work ethic has been weakened (especially perhaps amongst the young, young men above all), and where the goals of production themselves are now under challenge. Finally, all policy-driven educational innovation constitutes an intervention within the institutions which provide educational services; the NVQ framework is being used, as are other assessment-driven curricular innovations, to overcome teacher-led resistance to change. In turn, though, the professional education lobby (and in this case especially the Further Education Unit) has, if often implicitly, been critical of industry's alleged unwillingness to move from a perspective of training as mainly a substitute for employment[2] or a short-term reaction to a more 'pro-active' approach which rests upon steady investment in the development of human capital. The forces behind the competency movement, then, are diverse, and they stand in a sometimes complex and even potentially conflictual relationship with one another.

Vocational education and the British state

Vocational training in Britain in modern times has traditionally belonged to what has been effectively constituted by employers and their lobby as the 'private' domain. Despite persistent expressions of belief that poor training and education were handicapping economic performance, public intervention in training was rare and limited in scope. Only in crisis was the state to step directly into the labour market as a training provider: obviously during the two world wars, and even then its scope was limited to training wartime workers—often women—for essential industries, best seen simply as a temporary extension of its peacetime role in training civilian employees in the arsenals and dockyards; the state also trained disabled ex-servicemen and women prior to their discharge. This temporary role was not entirely abandoned in peacetime, but its civilian scope was always redefined in terms of the 'public' domain, effectively as an arm of the welfare services. More sustained provision was a matter for the local state, where it long remained as a disregarded and low-status activity. Its scope did not, though, embrace the policy and practice of training within business and the professions, which were regulated by employers and the examining bodies, with little outside interference—even trade unions had little or no interest in training policy.[3]

Locally-provided technical training supported the two broad types of training which were deemed sufficient to provide specialised labour power to carry Britain through the industrial revolution, then the Fordist period of mass manufacture: apprenticeship and 'sitting by Nelly'. Apprenticeship of the young to the more experienced provided a cadre of skilled workers who could carry out integrated and complex tasks, often on highly differentiated jobs such as shipwrighting, where every product was different. The problem with this labour process was the considerable power it afforded to the skilled worker. Fordist regulation—so-called, of course, from the application of 'scientific management' in the motor industry—appeared to offer a means of simultaneously reducing labour costs through higher productivity; and the creation of a consumer market through wage improvements.[4] I certainly accept that Fordism's impetus towards popular consumerism has profoundly affected adult education as a whole, but the focus here is on the implications for training policy and systems.

The chief purpose of Fordist mass production was to raise productivity by breaking the grip of the skilled worker over the labour process, repackaging the latter into small, repeatable, visible and therefore measurable and controllable steps. Each step could be carried out, time after time, by the worker and machine, in the way parodied by Chaplin's *Modern Times;* new workers learned by observation and practice. Fordism also required specialised strata of professional managers, sales staff, technicians and development scientists. Simultaneous with the growth of Fordism was the expansion of the welfare state, with a very rapid growth of employment in local government, the health service and education; in these three areas too new quasi-professional groups—including a small but growing number of technical college teachers—emerged with a strong administrative hierarchy and a public service ethic.

The consequence was the emergence of differentiated forms of vocational educational qualification, with differential access. Training for the Fordist production worker, such as was needed, took place on the line and was so empty of any wider content than repetition that there was serious policy concern over the utter absence of any wider awakening of the young mind—to civic virtues, to culture, to discoveries in technology and science which would produce the new, white-hot future. By contrast, highly specialised occupational training emerged for the other two groups within the labour market: scientific production, personnel management and human relations for the Fordist managers, and a series of separate functional tracks for the Welfare State professions. Alongside these, the range of technician-level courses also expanded steadily. Qualifications proliferated, most of them conferred by awarding bodies that were in turn either governed or regulated or advised by industrial or professional bodies, each jealous of its autonomy and each seeking to limit the role of other parties to the process.

It is not too difficult to see how this situation broke down. It is not simply that Thatcherism destroyed the cosy corporatism of the awarding and regulatory bodies; nor merely that industry and profession-based proliferation led to confusion. Fordism or Taylorism was, if you like, a second industrial revolution. Even in the fifties, the use of scientific work management systems derived from Taylor met with resistance from workers; as a predominant mode of organising labour its decline became unmistakeable, in retrospect, in the 1970s. At about the same time, the steady expansion of Welfare State employment started to falter, then to stagnate. Given the extent of change—epitomised in such expressions as 'post-industrial society', and even in Germany 'the end of the work-society'—it may be important simply to establish the main lines of continuity. A number of characteristics of western capitalism have persisted, first and most obviously the fact that capitalist organisation of the economy still predominates, and that the creation of surplus value—profit—remains its driving force. Second, like the Fordist industries, most economic activities continue to be conducted by very large organisations; indeed, this is now true not only of privately owned concerns but since the 1950s and 1960s it has also been true in local government, education and the public health system. Third, 'post-industrial society' has not abolished the working class; neither has it undermined the existence of a distinctive working-class culture, although it has wrought significant changes in it.[5]

Broad patterns of economic change have been so widely observed that little further elaboration is required. So far as the organisation of work is concerned, the main discontinuities would appear to be:

- the tertiarisation of the economy: many more people now work in retail, financial services and administrative organisations than in manufacturing;
- the feminisation of the labour force: as personal service and home-based activities are commercialised, so women come to form a more strategic and numerous part of the labour market;
- increasing core-periphery divisions: there are growing numbers of self-employed, part-time and contract workers, and growing attention to the 'personnel' and identity aspects of the core of full-time employees;
- globalisation produces 'flighty capital': transnational ownership requires managers to show greater sensitivity to unit labour costs, and export work to low wage economies, using high wage economies only when they offer greater added value;
- greater returns on 'flexibility' and adaptability of labour: adoption of new techniques within existing plant, rather than opening new plant elsewhere.

There also appears to be a persistent, if paradoxical, coexistence of a permanent 'surplus' of labour with selective skill shortages (which are predicted to grow through the 1990s, for technological and demographic reasons).

Such changes have been observed as keenly, and anxiously, by the professional education lobby as by government. With the decline of youth unemployment programmes, there has been a strong lobby, both from within the public education service and from central government agencies such as the Training Agency, to persuade employers more systematically to train and update those who are in work. This attempt to create a constituency for training, though, requires at least lip service to the idea of a consensus about the kind of training required.[6] To take one example among many:

> Economic, social and demographic changes are leading to a generally recognised need to reform our structures of education and training. The need

> to develop a better educated, more flexible workforce, with education and training continuing throughout life, is increasingly understood, and has been given prominence in a range of Government policy proposals.[7]

Yet notions such as 'flexibility', far from being consensual, are highly contested, for example by trade unions. And the 'tacit utopia' of this lobby, with its assumption that the desirable future is one of higher productivity and faster growth, is also very much open to challenge. Perhaps the most significant change of the period since the early 1960s, in the long term, is the emergence of what are sometimes called 'post-materialist values'; certainly it is difficult to identify any period in the past when there was substantial support for political and social movements which challenged the very idea that progress equals economic growth. Yet that is precisely the challenge of Green movements today.

Finally, the new system appears to be firmly in the grip of business interests. In practice it is hard to say whether this is more formal than real, and it may be better to say that the NCVQ framework has been designed to exclude education interests; thus education providers are not even represented on the Lead Industry Body for Training and Development. The most plausible explanation is that the NVQ system is not just about the labour market; like the new Training and Enterprise Councils, it is a state-driven creature, in large part designed to effect and secure change in the public education and training system. The system itself, with a large workforce protected by the values of teacher professionalism, is notoriously impervious to outside attempts at change and restructuring. However, in the past ten years a number of reform efforts have emerged which have sought to use the assessment process to drive changes in teacher behaviour. Examples are GCSE, the national curriculum and now NVQ.

The low-trainers and no-trainers: A problem for policy

These developments are familiar enough; and it would be odd if, taken together, they did not produce pressures on the system of vocational qualifying education. But competency-based qualifications are only in part an attempt to cope with the desire for flexible workers. They are also an attempt to manage the risks created by the unpredictability of employers' investments in HRD, at a time when we appear to be witnessing a growing diversification of the labour market in rapid and often complex ways. Of most concern to the new training lobby are those sectors of the labour market where conditions actively work against involvement in the vocational education system.

First, there are very large sectors where employers and workers perceive themselves as having few or no training needs. This would include those industries where employers' immediate needs are for speed, obedience and low unit labour costs, and workers' needs are for short-term cash pay-offs: thus in the fast food and retail sectors, which remain labour-intensive despite computerisation at the check-out and in warehousing and administration, outlets are often intrinsically close to the consumer and are as a result being systematically subjected to hi-tech Fordism; at the lower end of the market (e.g. burger bars) there is often not even any perceived need to train in interpersonal skills; even at the higher end there is often no pressure from employers for retail staff to know much about the products they sell; literacy, youth and low unit labour costs have solved most of employers' perceived problems, while in companies which do offer training in-house, much of what is offered is company-specific.

Second, there are sectors where employers perceive their training needs as highly specialised and as having little connection, or being in competition, with other employment sectors. Some of these are high wages areas where there is great interest in recruiting the highly skilled but little or none in offering continuing qualifying training which might be used by workers to change employer. The entire software industry is a case in point. It may offer continuing training, but it rarely carries a qualification. Workers themselves, though, will often commit personal investments to gain advanced qualifications but on the basis of incomplete information, with the consequence that there are recurrent 'cobweb cycles of over- and underproduction of specific qualifications in various educational and labour markets'.[8]

Third, there are low wage sectors where qualifications offer an entry threshold but otherwise carry little currency. In these sectors, workers' qualifications are gained despite the employer, often at public sector institutions while at the pre-entry stage, and carry little external currency. Nursery nursing is an obvious instance.

Such low-training sectors have multiplied in recent years. Training investments may simply look irrational, both to employers and, often, workers. Their significance is in generating pressures, at a time of general withdrawal from corporate structures and overall regulation, for a state-led and national (potentially supra-national) system of vocational qualifications. Hence the use of Training Agency contracts with employers and providers of vocational education to create an artificial 'command market' for qualifications accredited by the NCVQ. The question remains whether the next stage—competition for scarce labour leading on to the offer of training as part of the overall recruitment and benefits package—is anything more than a pipedream.

Towards a critique

Most of the critical comment on NVQ has focused on technical problems. For example, how do you ensure accuracy and comparability of performance specifications? How do you consistently interpret words like 'satisfactory' (vs. 'unsatisfactory')? What about potential for future performance? What size are the units of competence? It is as though the NCVQ approach was entirely new and squeaky clean. It has, though, a history, in attempts to apply behaviourist psychology to a range of fields of human learning. The advantages of behaviourist psychology in education are that it stresses outcomes of learning, their predictability and their measurability. It has equally been criticised, both in Britain and the United States.

Behaviourism has been attacked by adult educators on philosophical and conceptual grounds, but they have not been widely noticed for what appear to be sectarian reasons. Jack Mezirow accused behaviourist adult educators in 1978 of 'indoctrination to engineer consent' and of addressing 'the wrong reality to begin with'. Four years later he returned to the theme:

> There is nothing wrong with this rather mechanistic approach to education as long as it is confined to task-oriented learning common to the 'technical' domain of learning ... It is here such familiar concepts as education for behavior change, behavioral objectives, needs assessment, competency-based

> education, task analysis, skill training, accountability and criteria-referenced evaluation are appropriate and powerful.[10]

Mezirow did not see behaviourism as appropriate for his other two 'domains'—social interaction, and above all the most adult of learning transactions, 'perspective transformation'. Similarly Jarvis has attacked behaviourist approaches for at best confusing the processes of learning with the outcomes and at worst ignoring processes altogether.[11]

This is a critique from the viewpoint of liberal adult education, which may be weakened in its impact by its particularism. Like many adult educators, Mezirow and Jarvis ignore the fact that humanistic and liberal philosophies are shared by much of the teaching profession in schools and other mainstream post-sixteen institutions, from youth work to universities. And in a sense this is also inevitably a practical problem for NVQ's advocates: unless they are to bypass the mainstream public system they have either to persuade educationists that NVQs are entirely compatible with humanistic philosophies or that humanistic philosophies should be amended or abandoned—neither of them a simple or conflict-free task.

Many educationists now doubt the value of any generic theory of learning. Rather they stress the virtues of pluralism, taking the view that learning outcomes appear to be context-specific and can vary enormously from one child to another, from one set of circumstances to another. As Jarvis points out

> Much of the research was undertaken with animals and the remainder with children. In no case was there any research into the thought processes of the subjects ... Research into children's learning was also undertaken by adults, so that this created both change in context and also a new set of status relationships. Since the context itself might be a significant factor in the learning process these researches omitted another important factor.[12]

This point can be extended. In a mass schooling system, where large numbers of young people (and adults, increasingly) are in the classroom because someone has said they must be, teaching is inimical to mere rule-following. Routinisation of the kind which NCVQ envisages may avoid the problem by bypassing teachers, operating through in-house mentoring systems of various kinds, which NCVQ clearly intend should be routinised and managed from above by performance monitoring and so on. However it has yet to be shown that a routinised learning process can work.

Workers in other fields have also drawn attention to behaviourism's lack of attention to contexts; for example, Lindsay Prior in a survey of evaluation research in mental hospitals points out that:

> in many respects, behaviourism is only another form of reification in which human 'problems' are projected onto the isolated, decontextualised human frame and detached from the meaningful contexts in which they occur. Thus, people become bodies who behave, and their problems are seen to rest in their behaviour rather than in their social condition. Their behaviour is subsequently sorted into constructive and unconstructive, useful and useless, dependent and productive categories.[13]

Prior suggests that inappropriate attempts to promote assessment practices based on a behaviourist psychology have been so widespread because behavioural changes are easy to record and quantify, enabling managers to believe that they can account for what it is that they do. They cannot because of the unpredictability of social contexts and learning.

The specific context which most closely affects NVQs is the labour market. It has yet to be seen whether NVQs will substantially change the present somewhat tenuous relationship between vocational qualification and actual occupation, where the possession of credentials is only one of the variables involved in gaining and advancing in a particular job, and one whose importance varies in different conditions.[14] NVQs will in principle lead to more intelligibility and transparency of the qualifications system, and thus may make for greater 'match' between certification and occupation; as against this existing hierarchies of control at work are to be utilised, in order to assess competencies gained directly at work, rather than challenged. Accordingly it is difficult to see how competency can greatly affect equality of opportunity either way. Further, NVQ contributes to subordination precisely by its reinforcement of the divisions between different aspects of the work process: its five-tier structure of course makes explicit the hierarchies of the workplace, and the known difficulties of applying a competency-led framework to the fourth and fifth levels makes clear what it is that is being excluded from the lower levels: any development of the kinds of qualities needed to take decisions and manage enterprises, even within the impoverished and limited frameworks of relative powerlessness in which most managers are given the illusion that they rule. Mezirow implicitly accepts this when he accepts the 'relevance and power' of mechanistic behaviourism so long as it is confined to the 'technical domain'. Why is perspective transformation not as legitimate in the technical as in any other domain? Why assume that perspective transformation and technical learning can not substantially overlap? They are only separate when the purpose of technical learning is circumscribed by the need for labour to be subordinate to the demand of the enterprise.

Competency based assessment, in its present form, threatens to become the new Fordism of the education system. The proliferation of competency specifications and the increasing precision with which competences are stated parallels the 'parcellisation' of the workforce and labour process. As competences are differentiated more finely, so it becomes more and more possible to narrow the scope of initiative and field of responsibility of each individual in her work; the coherence and goals of the organisation accordingly become less rather than more intelligible.[15] As well as inviting bureaucratisation, this process is likely to foster alienation from work rather than revive the work ethic.

A wider critique, then, would start from the assumption that what is at stake is not simply the competence and allocation of labour power at the macro-level, but also its continued subordination, and indeed the meaning and value of work itself. If the goal is to produce human beings who are creative and flexible in their handling of work, as of their other human activities, a more holistic approach is needed. Atomised and mechanistic approaches are more likely to foster the learning of strategies of manipulation and resistance: Australian researchers report on 'the apparent extent to which students would forget material once they had finished a particular competency'.[16] Indeed: this is rational and learned behaviour; it is in a way a higher-level competence. The competency movement, then, is a deeply contradictory one. In its conventional forms, it seeks to impose uniformity of standards of performance and its measurement, in order to strengthen employer control over labour, and support strategies to 'add value' through the more efficient distribution of the workforce. Yet in order to work towards these ends, it also has to allow for flexibility in the face of constant technical and organisational change, as well as the movement of labour and its skills between different employers. The example of movement across national boundaries makes the point: it requires standardisation and flexibility.

These are common problems in education, and taken with education's inherently future-oriented nature they raise a number of questions of legitimacy. With the erosion of industrial society and the growth of what are sometimes described as 'post-materialist' values, it is no longer possible to construct a consensus around the desirable future to which vocational education inputs will lead. Not only are there no shared work-based utopias; on the contrary, increasingly the future is perceived and represented as full of threats. Education, which has for so long taken the desirability of technical-scientific progress as a given, is faced with questions which can only find provisional and often disturbing answers; and to many of which any given answer will be inherently contestable.'[17] Will a more productive economy simply produce a more polluted society? Will faster growth lead to war over energy supplies? Is greater affluence in the west possible without poverty and envy in the south and east? And what of work—is it now an avoidable evil, or a scarce social good which should be more equitably shared among the population? Since it is largely the act of production which creates so many of our difficulties (from low pay to pollution), there is no likelihood of any qualification system being able to secure legitimacy for more than a short period of time if it is subordinated to the goal of greater production. This being so, there is no intrinsic reason to abandon the goal of a wider transforming and humanistic general education as part of the matrix in which changing vocational qualifications are provided and gained.

References

1 P. D. Ashworth and Judy Saxton, 'On 'competence'', *Journal of Further and Higher Education* xiv, 1990, pp 3–25.

2 Denis Gleeson, *The Paradox of Training: Making Progress out of Crisis*, Milton Keynes: Open University Press, 1989.

3 Rodney Lowe, *Adjusting to Democracy: the Role of the Ministry of Labour in British Politics, 1916–1939*, Oxford: Clarendon, 1986, pp 223–225; John Field, 'Unemployment, training and manpower policy in inter-war Britain', *British Journal of Education and Work* ii, 1988, pp 39–49.

4 Harry Braverman, *Labour and Monopoly Capital*, New York: Review Press, 1974; Michael Barratt Brown, *Models in Political Economy: A Guide to the Arguments*, Harmondsworth: Penguin, 1984, Ch 15; Andre Gorz, *Critique of Economic Reason*, Verso, 1989, pp 44–46.

5 Peter Alheit, 'Krise der arbeitsgesellschaft—ende der arbeiterkultur?' in Dieter Mazur and Marion Buessenschuett (eds), *Bildung in der Arbeitsgesellschaft*, Universitaet Bremen, 1989, p 90.

6 Dorothy Oakey, 'Adult education, work and leisure: a critical analysis', *Studies in the Education of Adults* 22, 1990, pp 31–48, p 38.

7 Unit for the Development of Adult Continuing Education, *Understanding Competence*, Leicester: NIACE, 1989, p 4.

8 Dieter Timmermann, 'Financing mechanisms: their impact on post-compulsory education', in Henry Levin and Hans Schutze (eds), *Financing Recurrent Education*, Beverly Hills: Sage, 1983, p 107.

9 Jack Mezirow, 'Perspective transformation', *Adult Education* [USA] XXVIII, 1978, p 107.

10 Jack Mezirow, 'A critical theory of adult learning and education', *Adult Education* [USA] XXXII, 1981, pp 18–19.

11 Peter Jarvis, 'Adult learning in the context of teaching', *Adult Education* 60,1987, pp 261-266, p 261.

12 Jarvis, p 261.

13 Lindsay Prior, 'Evaluation research and quality assurance', in J. Gubrium and D. Silverman (eds), *The Politics of Field Research: Sociology beyond Enlightenment*, Beverly Hills: Sage, 1989, p 145.

14 R. Dale and E. Pires, 'Linking people and jobs: the indeterminate place of educational credentials', in P. Broadfoot (ed) *Selection, Certification and Control: Social Issues in Educational Assessment*, Lewes: Falmer Press, 1984.

15 Gorz, pp 31–32.

16 Philip Candy and Roger Harris, 'Implementing competency-based vocational education: a view from within', *Journal of Further and Higher Education* xiv, 1990, pp 38–58, p 55.

17 Jurgen Oelkers, 'Utopie und wirklichkeit', *Zeitschrift fur Padagogik* xxxvi, 1990, pp 1–13.

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THE TROUBLE WITH COMPETENCE

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N. Norris, 'The trouble with competence', *Cambridge Journal of Education*, vol.21, no.3, 1991, pp.331–41.

Texts, sects and heresies

Introduction

Everybody is talking about competence. It is an El Dorado of a word with a wealth of meanings and the appropriate connotations for utilitarian times. The language of competency-based approaches to education and training is compelling in its common-sense and rhetorical force. words like 'competence' and 'standards' are good words, modern words; everybody is for standards and everyone is against incompetence.

The concept of competence has become associated with a drive towards more practicality in education and training placing a greater emphasis on the assessment of performance rather than knowledge. A focus on competence is assumed to provide for occupational relevance and a hardheaded focus on outcomes and products. The clarity of specification, judgement and measurement in competency-based training indicates an aura of technical precision. The requirement that competencies should be easy to understand, permit direct observation, be expressed as outcomes and be transferable from setting to setting, suggests that they are straightforward, flexible and meet national as opposed to local standards.

In the search for a new rhetoric and technology for vocational education the term competence re-emerged as a motif around which an innovation could grow. In line with the recommendations of the DeVille Report, the 1986 White Paper *Education and Training—Working Together* called for the reform and modernisation of vocational training through a structure of recognised qualifications based on competence and matched to the needs of modern employment. In the developments that followed 'competence' assumed a special significance for vocational training and also for professional education and preparation[1]. Indeed, the first issue of *Competence and Assessment* (the bi-monthly bulletin of the then MSC's Standards and Assessment Support Unit) claimed that it marked 'and early step in the emergence of a new discipline'.

Despite their practicality and apparent simplicity the concepts of competence and standards have had a troubled history. As tacit understandings of the words have been overtaken by the need to define precisely and operationalise concepts, the practical has become shrouded in theoretical confusion and the apparently simple has become profoundly complicated.

Behaviourist constructs

The most prevalent construct of competence is behaviourist. It rests on a description of behaviour (sometimes called performance) and the situation(s) in which it is to take place (sometimes referred to as range statements) in a form that is capable of demonstration and observation. Writing about the competency movement in the USA, Fagan (1984, p. 5) observed that the 'fusion of behavioural objectives and accountability' provided a national rhetoric for competency. It is easy to see why. For example, Gagne & Briggs state that:

> Precisely described objectives are those which make observations of another person possible. They need to include a number of components. They must, first, describe the action that the student is taking. Obviously, too, an objective must describe the situation in which that action takes place. Something must usually be said about the limits within which the performance will be expected to occur. And most important of all, the objective must indicate what kind of human capability is to be inferred from the performance that is under observation. (Gagne & Briggs, 1974, p. 79)

Behavioural objectives express what is to be learnt in ways that make it transparent, observable and measurable. Objectives also define the fine grain nature of teaching and learning, usually in a hierarchical form from the simple constituents of the desired behaviour to its more complex expressions. Behavioural objectives are outcome and product oriented. Operational definitions of competence are handled in much the same way. Competence is usually treated as something a person is or should be able to do. It is a description of action, behaviour or outcome in a form that is capable of demonstration, observation and assessment. Associated with a statement of competence is usually a performance criterion and it is this emphasis on 'treating achievements in performance as qualities of persons' which Short (1984, p. 166) and others have criticised as unwarranted. In contrast to a behaviourist construct of competence, the generic competency approach defines competence as 'broad clusters of abilities which are conceptually linked' (Elliott, 1989, p. 98).

Generic construct of competence

The generic competency approach favours empirical investigation to establish the competencies which discriminate between average and expert performers as opposed to the theoretical or logical requirements of a particular occupational function. A distinctive feature of this approach is that it eschews the specification of competencies in terms of the endless reduction of the job into its composite knowledge, procedures, skills and tasks that are characteristic of many training manuals (Pottinger, 1975). Instead the generic competency approach favours the elicitation through behavioural event or critical incident interviewing of those general abilities associated with expert performers.

The generic competency approach was used to inform the recommendations of the Stage 2 Review of Police Probationer Training (1984-86) and the subsequent development work that took place with respect to designing new forms of police probationer assessment in England and Wales. The Stage 2 Review recommendations stated that: 'the assessment system should be based on the concept of generic competence—an aggregate of skills, information and motivation' (MacDonald *et al.*, 1987, p. 192).

In the development of police probationer training that followed, the generic competency approach was interpreted in terms of the following research procedure: (i) identify the most effective performers in the job, (ii) study what these people actually do that distinguishes them from individuals whose performance is less satisfactory, and (iii) identify the specific skills, abilities and characteristics which are responsible for this difference. Research of this kind produces a very different account of competence to that of behavioural specifications. For example, the Elliott and Shadforth study of the competencies of good patrol police officers identified: 'competence in 'assessing the total situation', 'self-monitoring one's own conduct', 'empathizing accurately with the concerns of others', and 'exercising power and authority in manner consistent with organisational goals and professional ethics" as defining features of good practice (Elliott, 1989, pp. 96-97). What is interesting about this list is that it could equally well apply to other professional groups such as teachers. What is unclear is whether the universality of generic constructs of competence is a strength or a weakness. What is clear, however, is that it poses serious problems for the assessment of competence.

Cognitive constructs of competence

Messick (1984) defines competence as what a person knows and can do under ideal circumstances. He distinguishes between competence and performance by defining performance as what is actually done under existing circumstances. There is contained in this conception the idea that competence is about potential whereas performance is about actual situated behaviour. The competence–performance distinction is a familiar one. For some theorists, notably Chomsky, competence is the knowledge and rules that are necessary to a linguistic performance. For others, Flavell & Wohlwill (1969) would be an example, competence is a cognitive structure embedded in an activity, however, the transformational rules have a different status. Thus, it is possible to have the appropriate cognitive structure without a properly functioning system of transformational rules (Wood & Power, 1987, p. 410).

Wood & Power (1987) argue that competence must be distinguished from 'competencies' assessed in contemporary testing programmes. From a developmental perspective they define competence as resting on 'an integrated deep structure (understanding) and on the general ability to co-ordinate appropriate internal cognitive, affective and other resources necessary for successful adaptation' (p. 414). Wood & Power go on to say that a successful conceptualisation of competence would show 'how specific competencies are integrated at a higher level and would also accommodate changing patterns of salience among these skills and abilities at different ages and in different contexts' (pp. 414-415). These authors emphasise the importance of a developmental approach to competence that is not fixated by operational definitions such that what we can measure is taken to be what develops.

The attempt to encapsulate the full range of human abilities and adaptations with the concept of competence framed in terms of deep and hidden structures is an ambitious research programme, and one which Gellner (1974) has argued can be seen as 'morally offensive'. It is so, says Gellner, because a genuine structure is impersonal, 'it is an it not an I' (p. 99). If competence is thought of as a deep structure of general ability then it is difficult to see how this abstract construct can be related to practice. It is also close to offering a general theory of intelligence in terms of cognitive potential.

There is nothing as imprecise as precision

Typically competencies are described in terms of observable behaviour and explicit criteria. Like its forerunner behavioural objectives, the language of competence invites a spurious precision and elaboration in the definition of good or effective practice. The specification of competence is assessment led in that it is usually associated with a statement which defines performance criteria and expected levels of performance. Like the objectives model, competency-based approaches to professional education and training attempt to improve educational practice by increasing clarity about ends.

A key principle in the assessment of competence is that assessment criteria should be transparent for all to see. Ideally the assessment of competence should be grounded in performance in the workplace (CNAA/BTEC, (1990) *The Assessment of Management Competences: guidelines).* In effect notions of role, effectiveness, standards and quality are combined into a model supposedly preserving the essential elements of competence and indicative of evidence of competent performance. Such models can be highly reductive, providing atomised lists of tasks and functions, or they can be highly generalised, offering descriptions of motivational dispositions or cognitive abilities such as problem-solving. In the case of the former the sum of the parts rarely if ever represents the totality of good practice; paradoxically the role is under-determined by the specification. In the case of the latter it is difficult if not impossible to provide an operational account of a disposition or ability that does not rest solely on situational judgement. A more significant feature of models of competence is that in their tidiness and precision, far from preserving the essential features of expertise, they distort and understate the very things they are trying to represent.

In the effort to describe competence in precise, transparent and observable terms, to predict the specific outcome of effective action, what is in fact happening is the pre-determination of good practice. This was exactly the point that Stenhouse (1975) identified as the most significant failing of the objectives model of curriculum development and evaluation. The precise specification of performance or outcomes rests on and leads to be a mistaken view of both education and knowledge. Mistaken because there is a fundamental contradiction between the autonomy needed to act in the face of change and situational uncertainty and the predictability inherent in the specification of outcomes.

One person's ceiling is another person's floor [2]

Closely associated with the idea of competence has been that of standards. In the discussions that surround standards setting there is a tension between a floor of minimum acceptable standards that marks the divide between competence and incompetence, and a ceiling of standards of excellence that encapsulate the essential features of best practice. The key question is how minimum standards and standards of excellence are determined.

Standards are usually thought of as levels of achievement or performance. Standards are also values to which people aspire or lament the decline in or lack thereof. Measuring that something is being done to a satisfactory standard requires that what is to count as satisfactory can be stated with some precision. It requires the designation and justification of a criterion level below which performance is unsatisfactory and above which mastery, at that level, is assumed for all practical purposes.

A standard then is a desirable or necessary level of attainment. Another important feature of standards, especially in the literature on instructional design, is that they provide criteria against which to evaluate the success or otherwise of training. For instance Mager (1962) argued that specifying the minimum acceptable performance for each learning objective provides a performance standard against which to test instructional programmes. The DeVille Working Group on Vocational Qualifications said that vocational qualification as a statement of competence should include: skills to specified standards; relevant knowledge and understanding; the ability to use skills and apply knowledge and understanding to relevant tasks. The Working Group recommended that the NCVQ should establish a clear focus for national action to secure the specification of standards of competence.

According to Glass (1977) the idea of standards in educational assessment is connected with criterion-referenced testing. Glass attributes the first use of the term 'criterion-referenced test' to Glaser in 1962. Glaser thought that underlying the concept of achievement measurement was a continuum of knowledge ranging from no proficiency to all to perfect performance. In such a conception it is the degree of competence that is measured not competence versus incompetence.

The setting of standards for the purposes of assessment creates a problem of how to determine the criterion. Glass (1977) identifies six techniques for determining the criterion score or point in criterion-referenced assessment: (i) the performance of others, (ii) counting backwards from 100%, (iii) bootstrapping on other criterion scores, (iv) judging minimal competence, (v) decision-theoretic approaches, (vi) operations research methods[3]. He argues that educational movements in the USA like accountability, mastery learning, competency-based education and the like rest on the common notion that a minimal acceptable level of performance on a task can be specified. The fundamental criticism that Glass makes of such efforts is clear; the claim that the determination of competence can be made in a statistical or psychological way rests on spurious and misleading claims to precision and rationality since criterion levels or standards are in essence arbitrary. Glass' trenchant paper on standards and criteria was not without its critics. But among them Scriven (1978) and Popham (1978) were notable in agreeing that in large measure the technology of standards setting had promised precision but resulted in arbitrary decisions. We do not need to accept fully the criticisms that Glass makes of standards setting to realise that it is not as simple as current day vocational rhetoric would have us believe. To put it bluntly there is a massive mismatch between the appealing language of precision that surrounds competency or performance-based programmes and the imprecise, approximate and often arbitrary character of testing when applied to human capabilities.

If the assessment of competence presents difficulties of standards settings this is in part because the relationship between standards and good practice or best practice is not at all straightforward. Like theories standards are always going to be empirically under-determined. What is worrying is the extent to which they are not empirically determined at all, but are rather the product of conventional thought. Even if this were not the case the pace of economic and social change suggests that standards once set might quickly become obsolete.

Fret not after knowledge

If competence is about what people can do then at first sight it appears to circumvent the issue of what people need to know—it shifts the balance of power firmly in the direction of practice and away from theory. It focuses attention on questions of relevance: knowledge for what purpose? By making education and training more practical, by emphasising what a person can do rather than what they know, competency-based approaches supposedly make access more open.

In discussions about competence what is meant by 'knowledge' is rarely elaborated. Competency-based training theorists typically see knowledge as static, as information. They ask what knowledge underpins an activity and more specifically what does a person need to know in order to do this task or activity effectively. Often knowledge is seen as evidenced in the performance or as supplementary evidence to performance demonstrations that is required to support generalisation. Thus knowledge is largely seen as an issue of assessment. And what lies at the heart of this issue is whether knowledge relevant to an occupation needs to be assessed separately or whether it can be inferred from appropriate and effective action.

The idea that knowledge is evidenced in action has wide appeal. It appeals to those who want to maintain the primacy of performance evidence in the assessment of competence, and it appeals to those who see professional judgement as resting as much on tacit understanding as it does on propositional knowledge. The problem comes when you ask over what range of activities, settings and circumstances does a person have to act appropriately and effectively to be deemed competent. The shift from the assessment of knowledge to the assessment of performance changes the context of inference by it does not eliminate inference as a problem. For example, if performance in a particular range of situations is taken as evidence of more general underlying ability, then the generalisations that this kind of inference could refer to can be represented as, 'S' did well at '*x*' therefore: (i) '*S*' should do well at the next '*x*' in a similar range of situations; (ii) '*S*' will do well at things similar to '*x*'; (iii) '*S*' is good at things belonging to the range of activities '*x*' to X^n'; (iv) '*S*' is good at the class of things to which '*x*' belongs; and (v) because 'S' is good at '*x*' she will also be good at '*y*'.

What is wrong here, as I see it, is the assumption that the assessment of knowledge or performance, taken together or separately, can cope with the range of context dependent and contingent nature of professional action. It is not standards of performance that are required since these are beyond our capacity to specify. What is needed are standards of criticism and principles of professional judgement that can inform action in the context of uncertainty and change.

As an unperfect actor on the stage

Reflecting the dominance of psychological research and explanation in education the concept of competence has been largely stripped of its social content and context. Reduced to functions and tasks, construed as clusters of general or universal abilities, or defined as integrated deep structures what we have is a concept that has been psychologised and divorced from the cultural context of enactment and valuing.

Ethnographic studies offer a radically different account of competence in which good practice is defined in relation to the local occupational and organisational culture. In contrast to the other constructs of competence—ethnographers attempt to derive competence from the valuings of actual situated practices (Manning, 1977; Fielding, 1984, 1988; Norris, 1989). This approach raises at least three issues: first, competent practice cannot be defined in advance since it is always situationally specific; second, for an action to be seen as competent will partly depend on the audience judging it; third, what is the nature of situational judgement involved in good practice and what factors are given most salience?

Fielding (1984), for example, argues that actions cannot in themselves be seen as competent. Rather, competence is to be located in the accounts used to license or warrant actions. In this analysis the mark of a competent practitioner, in this instance police officers, is one who can choose the right account for the right audience. The approach recognises that what is good practice cannot be defined simply by reference to the function of the organisation of its aims and objectives. There are, Fielding would argue, a plurality of audiences who may or may not judge competence in similar ways.

Fielding (1988) writes about competence 'as a matter of accounting for specific actions as "effective", "skillful" or "good" ... by close attention to the nature and occasions of such accountings' (p.45). He argues that 'identifying specific actions as competent entails efforts to demonstrate the criteria according to which such a performance was elicited'. As Fielding points out these are empirical matters the aim of which is to specify the criteria employed in pursuing particular courses of action out of the alternatives available. He goes on to say that 'empirically operative criteria of competent practice can be identified by data which display the attribution of competence to some instance of practice' (p. 45). He argues, therefore, that in a study of competence what is required is evidence of 'naturally occurring talk by officers on the topic of competent performance, derived in relation to concrete episodes of intervention' and seen in relation to the organisational context (p. 46).

Fielding's (1988) analysis locates the definition of competence firmly within the interaction between values and situational decision-making. In large measure this is a descriptive account of competence grounded in working practices. The descriptions Fielding offers indicate the contingent and complex nature of professional judgement. It is also arguable that this approach to competence is both realist and conservative; realist because it is clearly empirical and tied to specific instances of action, conservative because the values that inform or underpin competence are largely those of the occupational culture.

Dressing old words new, spending again what is already spent

We have been here before and others have been here before us. In 1927 Ralph Tyler completed his doctorate in educational psychology at the University of Chicago. The title of his thesis was 'Statistical methods for utilizing personal judgements to evaluate teacher training curricula'. His research was based on the Commonwealth Teacher Training Study which was directed by his dissertation supervisor Professor W. W. Charters. Tyler was responsible for analysing teacher activity and he had amassed some two million responses from co-operating teachers who had written down on cards the activities they had been engaged in. According to Tyler his role was to classify these cards and provide a statistical method for identifying what were the important and crucial or critical incidents for teachers. Tyler goes on:

> the Commonwealth Teacher Training Study is a report upon which competence-based teacher education in those days was developed. You know about every 20 years or so the uneasy tension between theory and practice in professional education (whether it be doctors, teachers or others) alternates between emphasizing the activities within the profession, or emphasizing the theory that may help to guide the profession. This was one of those times when as now, the emphasis was on finding the competencies of teachers and trying to focus on them.[4]

As Tyler's work illustrates there is nothing new about competency-based approaches to education and training. And as Stronach (1990, p. 7) has argued 'recurrence—often around the symbolic centre of work—is the dominant feature of vocationalist initiatives'. Stronach invokes the notions of ritual and magic to explain how we might give recurrent failures a positive reading. Innovations like competency-based approaches to education and training may recur. They may even as Tyler suggests be cyclical not because they are successful innovations but because they are successful ritual responses to problems. If this is so then we need to examine the symbolic as well as the instrumental value of educational movements.

In his discussion of the language of competence Short (1984) is critical of the translation of competence and its derivatives (competent, competency and competencies) from its context of everyday use to a technical term in educational and policy discussion. This is more than the operational definition of a concept for the purposes of testing and measurement, it is the production of a technocratic ideology. The symbolic importance of competency lies in the resonance with the rational economic evaluation of social and organisational action. The trouble with competence is that it now has a currency way beyond its operational or conceptual reach.

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Notes

1 The 1986 White Paper on education and training stated that it was essential that the National Vocational Qualification levels should be progressive and should provide a ladder to 'enable suitable individuals to proceed to, and progress in, professional qualifications of all kinds' (p. 18).

2 With apologies to Paul Simon.

3 These six techniques for determining cut-off scores or levels are explained by Glass in the following terms: (i) the performance of others—that is, by reference to the parameters of existing populations of examinees. For example, the standard might be set at the 'median test score earned by persons of a certain type'. This form of standards setting is described as pure norm-referencing; (ii) counting backwards from 100%—that is, the standard is set by deciding what score or performance below 100% or absolute mastery is acceptable. Such decisions are, of course, arbitrary; (iii) bootstrapping on other criterion scores—that is, by determining a standard with references to some established external designation of success or mastery. Glass gives the example of a group of candidates for the bar. This group is then taken as competent and one can study the distribution of their scores on the test in question and maybe a standard can be established separating the competent from the incompetent. Glass says he knows of no examples of this technique. The principal problem with this technique is one of arbitrariness; (iv) judging minimal competence—that is, experts study a test or an assessment situation and declare that a minimally competent person should score such and such or be able to do it to a certain standard. There are two potential problems with this technique: first, can judges make determinations consistently and reliably? Second, what is the logical-psychological status of the concept of minimal competence. There is, of course, rarely any specific evidence of inter-judge reliability, but Glass refers to some research on this matter which found that differences between judges could be disconcertingly great. Questioning the psychological status of minimum competence he says that in common usage it refers to the smallest possible level of skill or knowledge at which one can still function adequately. Glass concludes that the attempt to base criterion scores on a concept of minimal competence fails for two reasons: it has virtually no foundation in psychology; judges disagree wildly; (v) decision-theoretic approaches—this technique rests largely on applying statistical methods for determining if the student's true mastery level is greater than a specified standard. The problem is addressed by decision theory techniques in the following way: persons are sorted into two classes on some external criterion of interest, e.g. graduated vs. not graduated from college; the proportion of persons in these two groups are denoted by Pe and 1 – Pe; if these same people were administered a criterion-referenced test in advance and a criterion score *Cx* was established by which persons could be classified as 'pass' or 'fail', then four combinations of passing or failing are possible. Glass denotes the probabilities of persons being in each of these states as in Table I.

Table 1

	External criterion		
	Pass	Fail	
Fail	Pa	Pb	1–Pc
Pass	Pc	Pd	*Pc*
	Pe	1–Pe	1

Pa denotes the proportion of 'false negatives' (i.e. people who fail the criterion-reference test but 'pass' the external criterion). Pd denotes the proportion of 'false positives'; the cut off score on the external criterion is taken as given and the criterion score on the criterion-referenced test is allowed to vary with the result that P varies as a result; it is possible to manufacture some aggregate function of good (Pb and Pc) and bad (Pa and Pd) consequences of setting the criterion score, *Cx*, and attempt to minimise the bad or maximise the good. Glass says of this approach that it finally rests on where you set the cut off score, *Cx*, and that once again this technique does not overcome the arbitrary nature of this decision. 'Of what concern is it', says Glass, 'that *'n'* items must be sampled or a cut off score set at *Cx* to minimise false negatives, if at the very bottom of it all the decision to 'pass' 30% vs 80% is judgemental, capricious, and essentially unexamined?'; (vi) operational research methods—this technique for setting a criterion score or standard rests on the general approach of operations research of maximising a valued commodity by finding an optimum point on a graph. This technique also rests on comparing the criterion-referenced test with some external standard which is highly valued for example, income at a certain age. The cut off score can be set at a point on the graph where that level of performance on the criterion-referenced test maximises the external valued outcome. The problem with this technique according to Glass is that it is likely to result in a situation where the criterion score on the criterion-referenced tests which maximises the valued outcome is 100% and is thus trivial.

4 This discussion by Tyler of the Commonwealth Teacher Training Study is taken from an interview he did with Jeri Ridings Nowakowski at the Evaluation Centre, Western Michigan University. It is reported in Madaus, G.F. & Stufflebeam (1989) (Eds) *Educational Evaluation: classic works by Ralph W. Tyler*, p. 245 (Boston, MA, Kluwer).

References

CNAA/BTEC (1990a) *The Assessment of Management Competences: guidelines* (London, Employment Department).

CNAA/BTEC (1990b) *The Assessment of Management Competences: project report* (London, Employment Department).

DeVILLE, H. (1986) *Review of Vocational Qualifications in England and Wales*, MSC/DES (London, HMSO).

ELLIOTT, J. (1989) Appraisal of performance or appraisal of persons, in: H. SIMONS & J. ELLIOTT (Eds) *Rethinking Appraisal and Assessment*, pp. 80-99 (Milton Keynes, Open University Press).

EMPLOYMENT DEPARTMENT & DEPARTMENT OF EDUCATION AND SCIENCE (1986) (The DeVille Report) *Working Together—Education and Training* (London, HMSO).

FAGAN, E. (1984) Competence in educational practice: a rhetorical perspective, in: E. SHORT (Ed.) *Competence: inquiries into its meaning and acquisition in educational settings* (New York, University of America Press).

FIELDING, N. (1984) Police socialisation and police competence, *British Journal of Sociology*, 35, pp. 568-590.

FIELDING, N. (1988) Competence and culture in the police, *Sociology*, 22, pp. 45-64.

FLAVELL, J. & WOHLWILL, J. (1969) Formal and functional aspects of cognitive development, in: D. ELKIND & J. FLAVELL (Eds) *Studies in Cognitive Development* (Oxford, Oxford University Press).

GAGNE, R. & BRIGGS, L. (1974) *Principles of Instructional Design* (New York, Holt, Rinehart & Winston).

GELLNER, E. (1974) *Legitimation of Belief* (Cambridge, Cambridge University Press).

GLASS, G. (1978) Standards and criteria, *Journal of Educational Measurement*, 15, pp. 237-261.

JESSUP, G. (1987) Editorial, *Competence and Assessment* (Bi-monthly Bulletin of the Standards and Assessment Support Unit) Issue 1, June.

MAGER, R. (1982) *Preparing Instruction Objectives* (Palo Alto, CA, Fearon Press).

MANNING, P.K. (1977) *Police Work: the social organization of policing* (Cambridge, MA, MIT Press).

MacDONALD, B. *et al.* (1987) *Police Probationer Training* (London, HMSO).

MESSICK, S. (1984) The psychology of educational measurement, *Journal of Educational Measurement*, 21, pp. 215-238.

NORRIS, C.A. (1989) Avoiding trouble, in: M. WEATHERITT (Ed.) *Police Research: some future prospects* (Farnborough, Gower).

POPHAM, W.J. (1978) As always provocative, *Journal of Educational Measurement*, 15, pp. 297-300.

POTTINGER, P. (1975) *Comments and Guidelines for Research in Competency: identification, definition and measurement* (Paper 2 of a series of 6) (Boston, MA, McBer & Co.).

SCRIVEN, M. (1978) How to anchor standards, *Journal of Educational Measurement*, 15, pp. 273-275.

SHORT, E.C. (1984) Gleanings and possibilities, in: E. C. SHORT (Ed.) *Competence: inquiries into its meaning and acquisition in educational settings*, pp. 161-180-(New York, University Press of America).

STENHOUSE, L. (1975) *An Introduction to Curriculum Research and Development* (London, Heinemann).

STRONACH, I. (1990) The rituals of recovery, *Anthropology Today*, 6(4), pp. 4-8.

MADAUS, G.F. & STUFFLEBEAM, D.L. (1989) (Eds) *Educational Evaluation: classic works of Ralph W. Tyler* (Boston, Kluwer).

WOOD, R. & POWER, C. (1987) Aspects of the competence–performance distinction: educational, psychological and measurement issues, *Journal of Curriculum Studies*, 19, pp. 409-424.

26

NVQS: AN ASSESSMENT OF THE 'OUTCOMES' APPROACH TO EDUCATION AND TRAINING

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K. Marshall, 'NVQs: An assessment of the "outcomes"approach to education and training', *Journal of Further and Higher Education*, vol.15, no.3, 1991, pp.56–64.

Abstract

This paper introduces the assessment procedures which are currently being utilised by the NCVQ. The emphasis on the performance of the Trainee is suggested as a major variable and Trainee competence is shown to revolve around being seen to perform efficiently.

Two theoretical positions are shown to underpin the NCVQ version of competence assessment. Functionalism and behaviourism in their more basic forms are very near to the surface of NVQ accreditation. It is demonstrated that both of these theoretical approaches are evident in the developing and emerging NVQ model. Finally, the question of suitability is raised. That is, it is suggested that the model of competence assessment currently being used in Further Education and soon to be introduced into Higher Education, may be unsuitable except perhaps at the more basic level.

Introduction

It is no exaggeration to claim, that the influence of the NCVQ (National Council for Vocational Qualifications) may soon affect all of the post compulsory education sector. From the early 1980s there has been a political move towards change in training and the assessment of skill acquisition. The New Training Initiative (MSC 1981)[1] began the process with suggesting the need to train people for careers in which technology would advance at great speed. This would require a flexible workforce and probable retaining, perhaps on several occasions in one working lifetime. The NTI also began the process of identifying the standards which were required by industry. These were introduced into the Youth Training Scheme as 'Standard Tasks'.

From 1984 the standard tasks were grouped into 'Modules of Accreditation'. This was taken further by 'Caterbase'[2] in 1985. This procedure formed the basis for the publication of the first NVQ (National Vocational Qualification) criteria in 1986. NVQ accreditation is available to those forms of training which are written in behavioural terms. That is, they are expressed as outcomes which are observed subsequently in the performance of the Trainee. The NCVQ are very clear that they consider the observable behaviour of the Trainee as the crucial variable.

NCVQ assessment procedures

To elaborate, each NVQ has a title, for example, 'Business Administration Level 1'.[3] The training requirement is then broken down into a number of 'Units of Competence'. These are a form of module and can be certified separately. It is quite possible for a Trainee to complete various units of competence in different training establishments. Within each unit are a number of 'Elements of Competence' approximately four of which comprise each unit. Each element is accompanied by a number of 'Performance Criteria', which represent the skills necessary to achieve each element successfully. An example may be appropriate:

> *TITLE*: BUSINESS ADMINISTRATION LEVEL 1
> *UNIT OF COMPETENCE 1*: FILING
> *ELEMENT OF COMPETENCE*: FILE DOCUMENTS AND OPEN NEW FILES WITHIN AN ESTABLISHED FILING SYSTEM
> *PERFORMANCE CRITERIA*:
> 1) ALL DOCUMENTS ARE FILED, WITHOUT UNDUE DELAY, IN CORRECT LOCATION AND SEQUENCE.
> 2) ALL MATERIALS ARE STORED WITHOUT DAMAGE IN A SAFE AND SECURE MANNER.
> 3) ALL DOCUMENTS ARE CLASSIFIED CORRECTLY.
> 4) CLASSIFICATION UNCERTAINTIES ARE REFERRED TO AN APPROPRIATE AUTHORITY.

It is recognised by the NCVQ that the situation in which a Trainee may be required to perform each skill may vary. To accommodate this, a range of applications is written into each element; these are known as 'Range Statements'.

Current and traditional training models

When taken at face value, the above procedure may seem quite reasonable. Indeed, the identification of the behaviour necessary to demonstrate skill acquisition is without doubt a major step forward in training in Britain. This can be contrasted with traditional forms of training, for example the five year apprenticeship scheme. An apprenticeship varied considerably between employers and an apprenticeship certificate, often made no reference towhat the apprentice could actually do,[4] except in the most general terms. An obvious result of this was, that the interchangeability of staff was a serious problem. The recent move towards a statement of a trainee's ability, written in behavioural terms, is a clear improvement upon these more traditional forms of training. It is now possible to hold expectations about the ability of new employees, based upon certified performance. This certification has national credibility and has exchange value nationwide. The trainee also benefits, because the training can now be spread across several trainers in several geographical locations if necessary. The units are certified separately and transferable.

All of these points represent considerable improvements upon the pre 1980 industrial training situation. At the level of industrial training in its widest sense, the NCVQ have taken on board a difficult task and reform was long overdue. There is little doubt, that training has now improved considerably when compared with the unstructured disarray which was so evident before 1980.

The major issues

There can be little disagreement that there was a need to change and the NCVQ are addressing this need with some success. There are however two major problems with the procedure which has been adopted by NCVQ which need to be considered urgently. One of these is essentially a practical concern and revolves around the issue of competence. The assessment of all NVQ's requires that the Trainee is judged against a series of performance criteria. When these have been demonstrated to the satisfaction of the assessor, the trainee is considered to be competent, within the range of applications of the relevant performance criteria. The problems associated with this procedure have been analysed by Ashworth,[5] and by Ashworth and Saxton.[6] They suggest, that not all of an individual's work related activity will fit into a competence model. Indeed, the point is made, that the competence model currently being introduced, may well hinder rather than encourage learning. They conclude that 'competence is the embodiment of a technically oriented way of thinking which is not normally appropriate to the description of human action, or to the facilitation of the training of human beings'. It is clear that the NCVQ have practical difficulties which as yet remain to be resolved, relating to the actual assessment of competence.

The second major problem will be considered in far more detail. This indicates that the NCVQ process also has difficulties at a theoretical level. Two theoretical positions are utilised, though not readily acknowledged, to support the procedures proposed by NCVQ. One of these is a type of functionalism and the other a variety of behavioural psychology. Both of these theoretical standpoints are used by Jessup[7] in his statement of NCVQ procedures. As Jessup is the 'Director of Research Development and Information' for NCVQ, his work carries a considerable amount of status. Each of these theoretical difficulties will now be considered in detail before any conclusions are reached.

Functionalism within the NVQ model

That a variety of functionalism is at the basis of the NVQ procedure can not be in doubt. Jessup describes a 'Functional Analysis of Competence' and goes on to describe how the statements of competence which are made in the units and elements are only produced after an 'analysis of employment functions'. It is worth pursuing this a little further, because he goes on to explain, following the lead of TADE[8] and also Boreham,[9] the functionalist procedure. This procedure requires that each group of skills is broken down into their 'primary functions'. These primary functions are further divided into 'sub-functions', which are then sub divided further. The purpose is to isolate each performance criterion and to demonstrate how each of these fulfils a function within the greater whole, the area of competence. All the performance crieria which are proposed as indicating competence, are therefore visualised by the NCVQ, as part of a fully functioning whole, in a traditional organic sense.

There is of course nothing new to this procedure. Following Spencer and Comte, Durkheim,[10] when looking to explain social facts, suggests that we should find their cause and secondly find their function. Finding the function of a social fact requires that the investigator considers those social facts which precede it. As Durkheim suggests, the investigator should look for the 'general needs' of the social organism.

To discover how a social fact fits into and functions within any social organism, Durkheim proposes an analysis of the preceding and related social facts. This requires the theoretical breaking down of the social organism into the contributing functions and sub-functions. When this is complete he can draw conclusions about the relationship between the various relevant social facts and their functions. All of these will in general benefit and enhance the overall social organism.

There is a very obvious parallel between the scheme proposed by the NCVQ and the sociological analysis of Durkheim. It is precisely the aim of the NCVQ to describe the functions of a skill by firstly isolating the primary functions and then dividing these into sub-functions and so on. In Durkheim's procedure this is very similar to investigating the preceding social facts. The NCVQ clearly consider the overall employment function as a social organism. Within the employment function they seek to isolate the units and elements of competence. These represent the primary functions of the skill. Performance criteria are produced by further sub-division of the primary functions into sub-functions. The aim is to state which primary and which sub-functions constitute the overall social organism, the employment function. The function of the primary and sub-functions is then described as the maintenance of the social organism.

It is then possible to isolate the background to the work of the NCVQ and Jessup in particular. This can now be taken a little further, to consider the validity of this procedure. The work of Durkheim clearly has a place in the history of social investigation. Many others have adapted his work and also modified and elaborated upon it—for example Parsons[11] who produced a very sophisticated theory which uses the concept of the system. Others include Merton,[12] Gouldner,[13] Davis,[14] Moore[15] The very relevant theoretical work of these more recent and more sophisticated functional investigators has been largely ignored by the NCVQ. This is a weakness in their scheme. If this tradition had been explored more fully, the eventual suggestions may have been different. For example, Parsons' discussion of systems is very relevant. Also of considerable importance is Merton's work on manifest and latent functions. None of these issues is addressed by Jessup and as a result they are ignored by NCVQ.

Within the functionalist tradition the assessment of competence as suggested by NCVQ has many shortcomings, mainly of default. There are also the problems identified by critics of functionalism to consider. These are very clearly outlined in a number of accessible sources for example Brown,[16] Cruff and Payne,[17] Rex,[18] Coser,[19] or Fletcher[20]. This is not the place to reiterate the case against functionalist research. Suffice it to summarise the major points. Central to these is the suggestion that functional analysis does not allow for people to respond in an unexpected way. That is, there is no place for imagination, will, reason or curiosity. In the context of the NVQ assessment of competence, there is no place for alternative indicators of performance. The criteria specified as 'the' performance criteria are the only ones which matter. Any attempt by the Trainee to think imaginatively is therefore stifled. Indeed, if a Trainee were to suggest an alternative procedure other than the performance criteria being assessed, then the trainee would not be judged as competent.

A further comment relating to functional analysis which remains to be discussed is that it is tautological. That is, that the proposals are circular. Because certain functions are seen to be performed it is concluded that there must be a need for these functions. Cause is therefore explained by consequences. The NCVQ as represented by Jessup propose that competence assessment is concerned with 'the purpose and outcome of work activity'. The purpose and outcome are imposed upon Trainers and Trainees by the NCVQ after consultation with employers. Therefore, the purpose and outcomes of the work activity are clearly defined by the NCVQ. Once the purpose and outcome is established, debate switches to the performance criteria necessary to achieve those purposes and outcomes. From that point on, there is no further consideration of the overall purpose of the training. This is established. Any questions about the validity of the training exercise are explained in terms of its functions. That is, it is being carried out in order to achieve the purpose and outcome of the work activity. Hence the explanation is tautological. Training is carried out to achieve aims which were constructed by the training agents, that is, the NCVQ. Therefore, the NCVQ construct the purposes of training and define what the outcomes are to be. These are then used as the basis for devising the units and elements of competence.

Behaviourism in the NCVQ model

Functionalist sociology clearly contributes a considerable amount to the proposals set out by the NCVQ. The second theoretical pivot around which training now revolves is behavioural psychology. The emphasis is now upon 'outcomes'. That is, the behaviour of the Trainee is observed by an assessor and the behavioural outcome of the training scheme is observed and commented upon. The assessment is unequivocal, the Trainee is either demonstrably able to complete the performance criteria or not. This process according to Jessup[21] 'takes the mystique out of assessment, and much of the threat'. The assessment of competence therefore gives Trainees access to the standards required and allows them to take decisions about when they are assessment ready. If the assessor does not agree, the Trainee is described as 'not yet up to standard' and further practice is recommended, before the assessment session is repeated. Failure consequently, is not an option and assessment can continue until the Trainee is considered to be competent.

The procedure is unashamedly behavioural. It is the outcome of the training which is to be assessed and the overt behaviour of the Trainee is the significant variable. The requirements of the performance criteria set out the parameters and performance is judged against those parameters. This procedure clearly draws upon the work of the classical behavioural school of psychology. The work of Watson,[22] Guthrie,[23] Thorndike,[24] and Skinner[25] is strongly represented. The classical behaviourists also concentrated upon the outcome of learning and judged the success of learning entirely by the behavioural outcome.

This simplistic view of learning is now only of historical interest. It is surprising that the NCVQ have based so much of their work in this orthodoxy because the theoretical considerations of learning has advanced considerably in the last twenty or more years. Even the most radical behavioural psychologist[26] would not now subscribe to the traditional view of learning so evident in the work of the NCVQ. The critical analysis of behavioural psychology is readily available and this is not the place to reiterate it in detail. For example, Gross,[27] Radford and Govier,[28] Bolles,[29] or Dickenson[30]. It may be useful though, to summarise briefly the major thrust of the argument, before going on to relate it specifically to the work of the National Council. Essentially, the major difficulty with classical behavioural psychology is that it has no place for individuality and for individual cognitive activities. A unanimity of behaviour is assumed, that is, in the same circumstances we all behave in a predictable way. This predictability is assured by our conditioning process and is invariant. There is no place for change based upon our human cognitive characteristics. All behaviour is therefore predictable and can be manipulated by the skilled teacher at will.

This model underpins the scheme adopted by the NCVQ. In his explanation of that system, Jessup[31] proposes that, 'statements of competence ... lay down what learners are expected to learn ... and also what should be assessed to confirm that the required learning has been achieved'. There can be no doubt about the role for assessment in this scheme. It is to confirm, that learning has taken place and this is achieved by confirming the statements of competence. The statements of competence are detailed in the performance criteria. The process of assessment is thus a process of confirmation that the trainee can perform the tasks outlined in those criteria.

Following the rather blinkered lead of the classical behavioural psychologists, the NCVQ has produced a scheme which relies entirely upon consideration of outcomes, that is upon observable behaviour. The same critique is therefore appropriate. The trainee from this perspective is reduced to an automaton. The assessor can only be interested in what is observed. If the trainee is seen to perform in the manner specified by the performance criteria, the assessment is successful. If any deviation is observed, failure is recorded. It is no longer described as failure, but clearly, if an assessment is not successful, it will be experienced as failure. There is no place in the scheme for innovation. The Trainee must follow the prescribed route, even if there are other more appropriate techniques available. In theoretical terms, there is no place in this scheme for cognition. The trainee must follow the prescribed route or fail.

Concluding comments

The NCVQ has changed the face of training in Britain. There have been massive strides forward in recent years and the introduction of some consideration of training outcomes was long overdue. It is important now to ask if the model which is being enforced by government, via the NCVQ and other training bodies, is an appropriate one. This paper suggests that is may not be. The model is based upon blinkered and unsophisticated social theories and consequently also reflects these traits. The functionalist and behavioural background has guaranteed that the model eventually produced is one-dimensional and prescriptive. There is no place for individuality, nor is there a place for any constructive contribution from the Trainee. The Trainee must remain passive and regurgitate the prescribed activities at the required time.

This is not an exaggeration of the situation. As the performance criteria are completely rigid, the Trainee must perform exactly to the pattern to complete each unit successfully. No deviation can be tolerated. The model therefore is designed to produce Trainees with little or no cognitive abilities beyond those required to do the job. Indeed, the job itself is often rigidly perspective and Trainees cannot be given the opportunity for any self expression.

For a time during the middle of this century, functionalism and behaviourism influenced much educational thinking. The introduction of the work of more radical Sociologists[32] of Education and the work of cognitive Psychologists[33] saw this influence decline. Since the 1950s, a central element in British education has been the general agreement that individuality of thought should be encouraged, within the wider curriculum constraints. Children in School, Students in Further and Higher Education and Industrial Trainees, were encouraged to think for themselves and to develop their cognitive abilities. All this is now under threat. The national curriculum in Schools and the development of NVQ in Colleges is an indication of this.

The pendulum may now have swung too far back the other way. NVQs are not established yet beyond level four. In the next few years the intention is to add further levels as the NCVQ tightens its grip upon Higher Education. Now is the time to act to prevent this. If the same model is applied to Higher Education the results will be disastrous. The prescription so evident in the NCVQ model would be diametrically opposed to the British tradition of academic freedom.

Even at the level of the most basic skills, Trainees must be encouraged to use their abilities to the full. The present scheme does not allow for this to happen. Some changes at all levels of training are obviously crucial and overdue. Despite this, there is much to recommend the model for training basic skills. It outlines precisely what is required and trainees are considered competent when the requirements can be met. The model becomes less effective as the level of skill and cognitive requirement increases. It is ludicrous to apply the same model to all levels of training. Only a model derived from a behavioural and functionalist background could have reached these conclusions.

The NVQ model should now be refined and/or restricted to the training of basic skills. More than a refinement is necessary for higher level training and a change in direction is crucial. It is not an overstatement to suggest that the current model will set back education in Britain in an incalculable way.

References

1. Manpower Services Commission, *New Training Initiative, 1981.*
2. Caterbase was a unit based system of accreditation which was introduced by the Hotel and Catering Training Board in 1986.
3. This title is part of a training course validated by the London Chamber of Commerce and Industry Examinations Board.
4. Many Certificates of Apprenticeship showed only very briefly what the apprentice had spent time on. For example, which departments of a factory the apprentice had worked in.
5. Ashworth, P., 'Is Competence Good Enough?', *N.A.T.F.H.E. Journal*, December 1990.
6. Ashworth, P., Saxton, J., 'On Competence', *Journal of Further and Higher Education*, Vol.14, No.2, Summer 1990, pp.3-25.
7. Jessup, G. *Outcomes: NVQs and the Emerging Model of Training*, Falmer Press 1991.

8 Training Agency, Department of Employment guidance notes on setting standards, 1988 and 1989.

9 Boreham, N. *Unpublished report to NCVQ*. Quoted in: Jessup, G. op. cit.

10 Durkheim, E., *The Rules of Sociological Method*, Free Press, 1964.

11 Parsons, T., *The Social System*, Routledge and Kegan Paul, 1951.

12 Merton, R.K., *Social Theory and Social Structure*, Free Press, 1968.

13 Gouldner, A., *For Sociology*, Penguin, 1973.

14 Davis, K., Moore, W., 'Some Principles of Stratification', *American SociologicalReview*, Vol.10, 1945, pp.242-249.

15 Davis, K., Moore, W., op. cit.

16 Brown, C.H., *Understanding Society*, Murray, 1979.

17 Cuff, E.C., Payne, G.C.F., *Perspectives in Sociology*, George Allen and Unwin, 1979.

18 Rex, J. *Approaches to Sociology*, Routledge and Kegan Paul, 1975.

19 Coser, L., *Masters of Sociological Thought*, Harcourt Brace, 1977.

20 Fletcher, R., *The Making of Sociology*, Michael Joseph, 1971.

21 Jessup, G., op. cit.

22 Watson, J., *Behaviourism*, Norton, 1924.

23 Guthrie, E.R., *The Psychology of Learning*, Harper and Row, 1935.

24 Thorndike, E.L., *Educational Psychology*, Teachers College Press, 1913.

25 Skinner, B.F., *The Behaviour of Organisms*, Appleton, 1938.

26 For example: Estes, W.K., *Handbooks of Learning and Cognitive Processes*, Erlbaum, 1975.

27 Gross, R.D., *Psychology*, Arnold, 1987.

28 Radford, J., Govier E., *A Textbook of Psychology*, Sheldon Press, 1980.

29 Bolles, R.C., *Learning Theory*, Holt Rinehart Winston, 1979.

30 Dickinson, A., *Contemporary Animal Learning Theory*, Cambridge University Press, 1980.

31 Jessup, G., op. cit.

32 For example the work of: Halsey, A.H., Floud, J. and Anderson, C.A. (eds) *Education Economy and Society*, Free Press, 1961.

Jackson, B., Marsden, D., *Education and the Working Class*, Routledge and Kegan Paul, 1962.

33 For example the work of: Piaget, Bruner and many others from within the field of Educational Psychology.

27

ALTERNATIVE MODELS OF COMPETENCE IN VOCATIONAL EDUCATION AND TRAINING

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P. Hodkinson, 'Alternative models of competence in vocational education and training', *Journal of Further and Higher Education*, vol.16, no.2, 1992, pp.30–9.

Introduction

With the increasing importance of the notion of competence in vocational education and training in Britain, the NCVQ definition of competence dominates the debate. This paper suggests that there are in fact two possible models of competence, here called behaviouristic and interactive. The paper analyses both models in terms of the implicit but conflicting value systems that underpin them. It rejects the NCVQ 'behaviouristic' model, but goes on to suggest that if an interactive model were adopted, many of the weaknesses of NCVQ approaches could be removed, while still retaining the power of competence to emphasise role performance as one important component of vocational education and training. Some of the practical implications of such an interactive model are explored.

Within British vocational education and training, 'Competence' is all the rage. The concept is one of the fundamental building bricks of the rapidly developing system of National Vocational Qualifications (NVQs), it is moving into management training in the Management Charter Initiative, and is increasingly influencing teacher education. As with many other major innovations, reactions are often strong and polarised. In this case, the climate of debate is heightened by a plethora of related and equally emotive distinctions: for example, education versus training, academic versus vocational, and the needs of the student versus the needs of employers.

In most of the literature thus far, the National Council of Vocational Qualifications (NCVQ) model of competence dominates. It is either advocated (Jessup, 1991), opposed (Ashworth and Saxton, 1990; Blackman et al, 1990; Hodkinson, 1991), or constructively criticised (Burke, 1989; Black and Wolf, 1990). In most of these pieces, there is an implicit assumption that there is only one model of competence. I wish to suggest that in fact there are two conflicting models, based in turn on conflicting belief systems, and that the power and utility of competence as an educational concept depends very largely upon which model is dominant. By belief system, I mean a largely internalised pattern of principles or theories, which, though normally implicit and unexplored, colour the ways in which we think and plan. The two belief systems described here are ideal types, and deliberately oversimplify positions to enable comparative analysis. The two models of competence have been described by Hodkinson and Harvard (in press) as behaviouristic and interactive.

A behaviouristic model of competence

Competence within NVQs is behaviouristic (Hyland, 1991). Role performance dominates, and is seen as a composite of skills, knowledge and understanding. Knowledge and understanding underpin performance and, where possible, are to be tested through it. The relationship between knowledge, understanding and performance is seen as linear and unproblematic. If I have the 'right' skills, knowledge and understanding, I will give the 'right' performance. Assessment of that performance is also assumed to be straightforward. This model is based on an implicit belief system.

This behaviouristic belief system incorporates aspects of logical positivism in assuming that reality is external to the individual and objective in nature. Knowledge is believed to be acquired through objective investigation, so that, for example, science is a means of advancing our understanding, continually narrowing the gap between what we know and what actually is. When applied to the notion of competence, such a belief focusses attention on the elements of competence and the statements that define them. Within the NCVQ system, the careful functional analysis of occupational roles is emphasised, in order to determine what the 'correct' elements of competence are. This work is controlled by industry lead bodies, which represent and are drawn from major employers in the field, who therefore give legitimacy to the selection and definition of particular elements. The implicit positivism which underpins NVQs is demonstrated by the assumption that role competence can be objectively discovered, defined and measured, and the central role that such definition takes in creating NVQs.

Hodkinson and Harvard (in press) called the underlying belief system 'behaviouristic' because it combines this positivistic ontology with a view of learning partly based on behaviourism. In its extreme forms, behaviourism sees learning as a response to external stimuli, where learners respond to their environment and to others. Thus, in the NVQ system, skill acquisition is seen as the result of an unproblematic and therefore undefined combination of instruction, practice and experience. As Jessup (1991) claims, learning is seen as goal directed. We identify the goal, for example an element of competence, and then learn to achieve it. Crucial to such a view is precision in assessment. Thus, the goals have to be defined in terms of behaviours that can in some way be measured. The assumption is that such measurement is unproblematic, and is simply a matter of finding the right evidence.

In the NCVQ system, appropriate performance of a role is taken as proof, for assessment purposes, that the necessary knowledge, understanding and skills must be there. The only exception to this are tests for knowledge and understanding where it is accepted that the range of situations and problems faced in a role are too varied and complex to be met with in routine performance that could be assessed. The implicit assumption is that there is one correct form of understanding, without which performance is impossible. Within the NVQ system, there is no specification of teaching or learning, because it is claimed that it does not matter how role competence is learned.

Ashworth and Saxton (1990) give a thorough analysis of many well rehearsed problems connected with the NCVQ view of competence, and their paper warrants studying in full. They suggest that elements of competence can fragment or atomise an occupational role, so that the sum of the parts adds up to less than the whole. This is made worse when the elements are used primarily for summative assessment. The constant search for elements which can be reliably and validly assessed can lead to the reification of the statements of those elements, which become ends in themselves as groups spend endless hours trying to get them 'right'.

Similarly, Blackman et al (1990) show that, despite the original intentions and all the hard work done on drawing up the specifications, NVQ assessment is neither objective nor straightforward, but is strongly influenced by context, is largely subjective, and that often the assessments are over-specified. More fundamental flaws in the NCVQ model of competence can be explored further if we examine the alternative, interactive model of competence, and the belief system which underpins it.

An interactive view of competence

Interactionists, following Mead (1932), argue that reality is not given and 'out there', but is the product of interaction within and between people as social beings. From this perspective, advancing our understanding is not seen as narrowing the gap between what we know and some external objective reality. Kuhn (1962) suggests that rather than moving towards truth in a linear way, the history of science consists of a series of paradigm shifts, or scientific revolutions, as one reality is substituted for another. From this perspective, the search for the definitive elements of competence to fit an occupational role becomes little more useful than the hunt for the holy grail, because there will be no absolute and objectively defined role in the first place. Rather, the role will be defined by the perceptions of different people, which in turn will be the product of their culture, history and interactions with others. The nature of role also depends on the context in which it is placed, including the unequal power relations between participants. Views of the role will often be contested. Not every car mechanic or hairdresser recognises the descriptions of their job found in the elements of competence drawn up by lead industry bodies and it is common for employer and worker to see the same role differently.

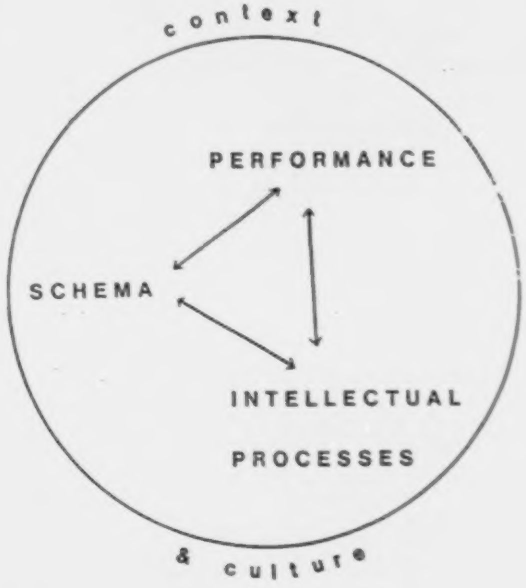
This interactive view of knowledge is complemented by recent work into how people learn. Rumelhart (1980), amongst many others, sees learning as the use and development of schemas. A schema is a mental representation of a set of related categories. When we come across something new, we select one of our repertoire of schemas to make sense of it. Unlike a behaviouristic perspective, schema theory sees learning as an interaction between the learner and the learned. The same speech, heard by a socialist and a capitalist, can be seen by both as supporting their case. This is because both use their own schemas to filter out the propositions that do not support their views. From this perspective, what we learn depends at least as much upon our beliefs and existing understanding (schemas) as it does on what we are taught. Learning is a dialectical process, where our use of schemas filters experience as we know it, and the schemas themselves are changed by contact with new stimuli, contexts or experiences.

Learning is not just about interactions between people, but also the interactions between people and their environment. Resnick (1987) suggests that one way in which learning outside school differs from most formal learning within school is in the greater congruence between the environment and that which is to be learned. She claims that learning in school would be much more efficient if we modelled it more on everyday learning outside. She does, however, give one important warning that is especially relevant to NCVQ. What she calls 'learning outside school' is situation specific, while education has to be engaged in generalisable understanding, capable of application and development in new and often unforseen situations.

Brown, Collins and Duguid (1989) claim that it is impossible to separate learning from its context. All cognition, they say, is situated. What you learn cannot be separated from the activity you are engaged in while learning, or from the context or culture in which the learning takes place. From this point of view, the NCVQ practice of isolating a statement of competence is a nonsense. Not only does the context determine how the element of competence is performed, it also determines what the competence statement actually means to the performer, the trainer and the assessor. Even in the same physical setting, other aspects of the personal context will be different for each individual, so that all may understand the statement differently. Furthermore, while the written statement takes on the identity of an external fixture, competence in practice is constantly evolving in a dialectical relationship between performers, actions and culture. By culture is meant the historically rooted system of established beliefs and values from which no person can be isolated. Furthermore, the performer, actions and culture are themselves dynamic. From such a perspective the NCVQ model of competence looks static and inappropriate, being based on a fundamental misunderstanding of the learning process.

While working with student teachers, Harvard (Hodkinson and Harvard, in press) has developed a model of competence derived from this interactive belief system. It is shown in Figure 1.

Figure 1: An interactive model of competence



Whereas, in the behaviouristic NCVQ model of competence, performance is all important, here it is only one of three closely related components. Schemas have been explained already. Part of competence is the way we perceive ourselves, the role and its situation. To change the performance significantly entails a change in schema. The development of both of these involves complex intellectual processes, some of which are not clearly understood. Between these three components, there are continual dialectical interactions. Changing one will affect all the others, often in ways which cannot be predicted, and all three components are related intimately to culture and context. Competence itself is seen as dynamic, with differing and constantly changing meanings and interpretations.

In this model, developing competence involves modifying the way in which we see the world, and such modification is an intellectual activity. Imagine the stereo-typical barber of my childhood, suddenly faced with a client wanting an Afro hairstyle. Extending his (it would have been a he!) competence to deal with this new demand would require changes to his view of what a haircut was, what a barber should do, and what counts as acceptable appearance. Simply giving training about how to complete the style would not be enough.

Some jobs may be routinised, but many others present constant new challenges. This is well known for the professions, where Schon (1983, 1987) has shown that professionals constantly use understanding drawn from prior experience to meet new situations. Every patient a doctor treats is in some sense unique, as is every class taught by a teacher. It is my belief that the same is true of many non-professional jobs, perhaps especially those dealing with people. The receptionist must be able to deal with the unique situation as well as the familiar. A jobbing builder is often faced with new problems of repair or maintenance. Even routine jobs are changing increasingly frequently, for example in response to new technology.

Dealing with such changing roles requires what Gilbert Ryle (1949) called intelligent practice. By this he meant the ability to learn from one performance, so that the next performance was different, rather than simply a replication of the former. This requires a mixture of context specific knowledge and skill, with generalisable abilities and strategies to tackle the unknown (Perkins and Salomon, 1989) and the ability to think critically for and about oneself. To practice intelligently, role performers have to theorise, to develop their own understanding of both the situation and role they are trying to perform. This theorising entails the integration of public theory (the accumulated wisdom of the profession, from literature or experts) and private theory (one's own personal beliefs and understanding) (Eraut, in press).

The use of an interactive model of competence such as Harvard's, enables such processes to be visualised and addressed, because it focusses on beliefs and how we think, as well as on performance. It results in very different uses of the concept of competence from those required by NCVQ. To begin with, far from taking the teaching/learning process for granted, such a model sees it as central in the development of intelligent practice. The teacher becomes a facilitator or mentor, helping learners to make sense of their own experiences (Harvard, in press). This has major implications for staff development, for Harvard claims that the skills of being a mentor may turn out to be much more complex than those of classroom teaching.

In addition, elements of competence can no longer be absolutely right because the model assumes that there are many different, valid ways of defining or breaking down a role, which are related to personal schemas, and to the context and culture in which learner and mentor are situated. Within this model, elements of competence are useful tools in the learning process. They help the learner make sense of the role by dividing it into manageable and understandable bits. They facilitate dialogue between performers, and between learner and mentor, and they can provide a map to locate achievements and learning needs.

To serve such purposes, the elements need to be *appropriate,* that is to comprise a sensible disaggegation of the role. They also need to be *effective,* that is, useful as a tool for learning rather than assessment. Provided they fulfil both these requirements, it does not matter if a different set of elements are equally plausible. Indeed, part of their effectiveness in use would depend on the developing ability of the learner to critically appraise the elements themselves in relation to his/her own role and situation, and to understand that they are oversimplifying and artificially fragmenting the role. There is no space here to explore the extent to which curricula NVQ elements of competence meet these two requirements. To do so, they would have to be broad enough and flexible enough to accommodate many different views of a role. This may be difficult to achieve if the statements of competence are defined as specific, measurable behaviours, and it might sometimes be more helpful to describe elements through statements about understanding and/or the learning process, as well as performance.

The potential benefits of an interactive approach to competence

One of the dangers in the current debate over competence is that the polarisation identified at the beginning of this paper could result in us throwing the baby out with the bathwater. There are benefits from a competence based approach, which, even under the existing NCVQ model, is moving the emphasis in vocational learning out of the classroom and into the working environment. I recently visited one College of Further Education where the hairdressing department had changed in response to NVQs. All learning was centred around a salon, where customers came to have their hair dressed. Trainees learned by cutting hair under the supervision of the instructor. Theoretical studies were related to the practical work that arose in the salon. Each trainee worked as an individual and as part of a group. Staff in this salon, without having read the paper by Brown et al (1989), were consciously trying to create a genuine culture of hairdressing, to provide authentic hairdressing activity, and to integrate conceptual development with them. Although no one in the salon talked about schemas, there was a genuine attempt to develop learning as individual development, with the learners sharing responsibility for how they learned, for the sequence of tasks undertaken, and for the pace at which learning took place. There appeared to be an implicit recognition that the same learning experience might produce very different outcomes for different students.

An interactive view of competence could preserve the best features of such learning, and significantly add to them. Its use would refocus attention on the learning process, and encourage meaningful reflection on performance. It would require greater attention to schema change and development in the learners, for example through making explicit current schemas, and structuring the introduction of new ideas. It would require significant engagement with public theory, but related to experience and performance in the workplace. While some of this no doubt already occurs, it is peripheral and optional within NVQs.

Another important change follows from this. For effective critical reflection, some learning is best done away from the job, where pressures of the present and constraints of a specific situation can make such general thinking almost impossible. NCVQ was right to indicate that much learning can profitably take place in a working environment. The use of an interactive model of competence makes clear that they were wrong to focus on it exclusively. It is possible that the simulated work places which FE Colleges are so good at creating are actually better environments than real work for at least some learning of vocational competence, and at times it will be beneficial to move away even from these situations to the more traditional seminar room.

Assessment of vocational learning, while recognising the importance of the elements of competence, must not focus on them obsessively. Just like the National Curriculum assessment in schools, and for similar reasons, assessment in NVQs, where each behaviouristic element of competence has to be slavishly measured, is in danger of collapsing under its own weight (Blackman et al, 1990). The important assessment judgements should be much more holistic, and should test more than work-based performance alone. In teacher education in my institution, classroom teaching is assessed as a holistic judgement, based on a competence check list. This is supported by a learning log or journal, which, together with tutorials, give access to learners thoughts and reflections as well as actions, giving insights into their understanding and ability to theorise. To such approaches can be added a range of other techniques, including written tests where appropriate.

By such a change in our conception of competence we can retain its power, which is to bring performance to the centre of vocational learning, without the reductionism and absurdities of the current NCVQ system.[1] Most importantly, the ability to deal with change can be addressed through the development of intelligent practice.

However, an interactive model of competence is no panacea. The application of the model will throw up numerous problems and difficulties. Furthermore, it should be seen as part of the learning and assessment process, not the whole. There is still a place for more academic styles of learning. Public theory needs to be critically addressed, and reading, discussion groups and lectures can be appropriate means of doing this. Learners should be helped to critically understand the economic, social and political contexts and constraints in which they work. This is necessary if they are to be able to adapt to different situations and cope with change, and is part of their right as democratic citizens. In this sense, the Education for Capability Manifesto was correct in seeing competence as an important addition to other educational elements, rather than subsuming them:

> 'A well balanced education should, of course, embrace analysis and the acquisition of knowledge. But it must also include the exercise of creative skills, the competence to undertake and complete tasks, and the ability to cope with everyday life; and also doing all these things in co-operation with others' (cited in, Burgess 1986, p. ix)

If we cannot or will not give students on vocational courses the whole of such a mixed diet, we are failing them and ultimately the society in which we live. Competence is a useful part, but only a part, of that diet. Using an interactive model of competence permits such a mixed diet, while the debate around the NCVQ model encourages extreme and in my view equally untenable positions, where competence is either all-embracing, a sort of 20th century philosophers stone that will turn the base metal of raw trainees into the gold of excellent workers, or alternatively a dangerous heresy to be shunned or attacked. To do justice to young people and to the needs of society it is important that we take a more sophisticated view than either of these, and rescue the concept of competence from its behaviouristic fetters.

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Note

[1] At the time of writing, finalised versions of General Vocational Qualifications (GNVQs) have not yet been published. It remains to be seen how far these new criteria for vocational education address the issues raised here.

References

Ashworth, P.D. and Saxton, J. (1990), 'On Competence', Journal of Further and Higher Education, vol. 14, no. 2, pp.l-25.

Black, H. and Wolf, A. (1990) (eds.). *Knowledge and Competence: Current Issues in Training and Education*, London: COIC.

Blackman, S., Brown, A., Haffenden, I. (1990), 'Resource Allocation: the Brake on Innovation. National Vocational Qualification in England and Wales'. Paper given to the conference of the International Association for Educational Assessment, Maastricht, The Netherlands.

Brown, J.S., Collins, A. and Duguid, P. (1989), 'Situated Cognition and the Culture of Learning', *Educational Researcher*, pp.32-42.

Burgess, T. (1986) (ed.), *Education for Capability*, Windsor, NFER/Nelson for the Royal Society of Arts.

Burke, J. (1989) (ed.), *Competence Based Education and Training*, Lewes: Falmer.

Eraut, M. (in press), 'The Acquisition and Use of Educational Theory by Beginning Teachers' in Harvard, G. and Hodkinson, P. (eds.), *Action and Reflection in Teacher Education*, New Jersey: Ablex.

Harvard, G. (in press), 'An Integrated Model of How Students Learn How to Teach and its Implications for Teacher Mentors' in Harvard, G. and Hodkinson, P. (eds.), *Action and Reflection in Teacher Education*, New Jersey: Ablex.

Hodkinson, P. (1991), 'NCVQ and the 16-19 Curriculum' in *British Journal of Education and Work*, vol. 4, no. 3, pp.25-38.

Hodkinson, P. and Harvard, G. (in press), 'Competence-Based Learning in Teacher Education', in Harvard, G. and Hodkinson, P. (eds.), *Action and Reflection in Teacher Education*, New Jersey: Ablex.

Hyland, T. (1991), 'Vocational studies that won't work', *Times Educational Supplement*, 20th September.

Jessup, G. (1991), *Outcomes: NVQs and the Emerging Model of Education and Training*, Lewes: Falmer.

Kuhn, T. (1962), *The Structure of Scientific Revolutions*, Chicago: University of Chicago Press.

Mead, G.H. (1932), *The Philosophy of the Present*, Chicago: Open Court.

Perkins, D.N. and Salomon, G. (1989), 'Are Cognitive Skills Context Bound?' *Educational Researcher*, Jan-Feb.

Resnick, L.B. (1987), 'Learning in School and Out', *Educational Researcher*, vol. 16, no. 9, pp.13-20.

Rumelhart, D.E. (1980), 'Schemata: the Building Blocks of Cognition' in Spiro, R. et al (eds.), *Theoretical Issues in Reading Comprehension*, Hillsdale New Jersey: Lawrence Erlbaum.

Ryle, G. (1949), *The Concept of Mind*, London: Penguin Books.

Schon, D.A. (1983), *The Reflective Practitioner*, New York: Basic Books.

Schon, D.A. (1987), *Educating the Reflective Practitioner*, San Francisco: Josey Bass.

28

MODULARISATION: DO WE REALLY KNOW WHY WE ARE DOING IT?

PHIL KER

P. Ker, 'Modularisation: Do we really know why we are doing it?', *The Australian TAFE Teacher*, vol.26, no.2, 1992, pp.117–19.

Modularisation (or 'Units of Learning' in NZQA parlance) has become one of the catchcries of the 1990s, within many of our institutions adopting a policy of modularisation, and teachers all over the country expending considerable energy reworking current courses into a module format.

Why are we doing it?

It is my hope that this article will raise some of the issues surrounding modularisation and perhaps stimulate some more informed debate on something that teachers around the country seem to be accepting as the way to go. Yet, as NZQA point out, it is a costly exercise to implement; and, experience suggests, one which teachers will inevitably undertake in their own time.

It is no coincidence that modularisation is being promoted in the current market-oriented environment: it is a predictable managerial response to demands for increased cost effectiveness, flexibility and consumer choice (advantages identified by NZQA in 'Designing the Framework' p.46).

Yet there is a dearth of either literature or research making the case on educational grounds for (or against) modularisation. What we do have from those who promote the modular approach are a host of hoped-for educational outcomes, and rationales based mostly on structural and administrative problems.

Consider some of the advantages identified by NZQA:

- credit accumulation and transfer is facilitated
- course changes are more easily made within small units
- there is a greater variety of entry and exit points
- common units give access to a variety of qualifications and limit the need for too-early specialisation
- there is more effective use of resources where units are common to several learning courses

- there is a flexibility of study and a greater control over individual learning as a result of increased choice between units and providers and between full and part-time study.

Now all of these advantages may be true but they reflect a somewhat functionalist or instrumentalist approach to education; and are more concerned with administrative matters than teaching and learning.

NZQA does propose some advantages in the latter sphere:

- success in student-centred learning is higher, thus increasing staff motivation

But can we really equate the offering of a module with student centred learning? If so, it seems a somewhat impoverished concept of student centred learning (perhaps someone could submit an illuminating article on this much misunderstood and misapplied concept for the next ASTE News),

and

- staff student relationships, student behaviour and attendance tend to improve.

This would certainly mean that modules would be a plus for learning, if they contributed to an improved learning environment. But do they? Or is this wishful thinking?

What then are some of the educational issues?

Modularisation and the curriculum

> Modularisation may initially be a force for innovation and evaluation, forcing teachers to think hard about content, sequencing and process (Jonathon, 1987, 86).

This would certainly be a good thing—but modularisation is not the only way of stimulating such a review. There is also the very real danger that in developing modules existing curricula will simply be carved up, with a possible loss of coherence and relationships, the latter is more likely if the process of modularisation is poorly resourced.

Modularisation is said to permit greater emphasis on process, problem solving and experiential learning, offering more student participation in learning. This might be a consequence of modularisation, but does not necessarily follow, and can be achieved in many other ways.

To the extent that modules are shorter rather than longer it is quite possible that they will militate against effective learning because of insufficient time for the development, consolidation and demonstration of skill, or for remediation. This is a real danger where modules are overfilled with content (itself easy to do).

NZQA sees an educational advantage in modularisation arising from the way modules are specified: 'statements of learning outcomes provide a clear expression of what has to be learnt ...' (p.46).

Whilst there may well be educational advantage in clear statements of learning outcomes, such is not a mechanism confined only to modules. However, such statements may serve to pre-empt or foreclose on relevant meanings which arise only in the process of teaching and learning. This consequence is arguably exacerbated in shorter, more tightly specified modules.

A further curriculum issue arises when we consider whether or not the sum of the parts of a curriculum that has been modularised actually does add up to the whole. It is possible that careful curriculum design can ensure this is the case but if there is to be certainty then flexibility of student choice must be sacrificed—yet this is often proposed as a major advantage of modularisation.

Modularisation and the learner

The advantages of modularisation for the learner are usually identified in terms of greater choice, leading to greater relevance and more balanced programmes. These benefits may well be realised.

But there are some educational losses. Modules, especially shorter modules (which are the ones that generate opportunity for choice) impose far more, and more constant assessment on students. They also narrow the learning directions of students, who may have less scope to follow their own interests within a broader programme. In this sense, modularisation is a partial conflict with principles of adult learning.

A second possible loss arises from reduced personal contact with teachers, and with a stable peer group. We do know that the role of teachers as friends/mentors can be very powerful in motivating students, especially those who are less mature or confident. And it does take time for such relationships to build. Thus:

> … to regard reduced continuity of relationship between teacher and learner as merely an administrative change is to endorse a technical view of the teacher as instructor (Jonathan, 91).

But then modularisation is a technical approach to education.

Modularisation and the teacher

The chief advantage is argued to be greater freedom and flexibility in the sense that it becomes easier to change part of a course (a module) than to reshape a whole course.

Again, this may be the case. Equally possible is that teachers don't end up designing modules at all; but merely delivering them—the designing being left to so-called experts.

Certainly, modules may well dictate less flexibility for teachers as a result of time and assessment constraints.

Modularisation also risks changing the nature of teacher work—to something more repetitious and less professionally challenging. The act of tightly describing modules in terms of outcomes and content has a deskilling effect.

In this article I have tried to raise some of the arguments against modularisation, not because I believe modularisation to be the wrong way to go, but because I believe we have not debated the issue thoroughly enough. One thing is for sure—no single approach to anything in education is ever 'the way to go'.

I am convinced that modularisation is good for administrators; whether it is good for students, teachers or learning is a moot point.

I hope this article generates some discussion, and that ASTE News is able to share the good and bad experiences that teachers have had to date.

Acknowledgment

I have drawn on a very thorough discussion of the pros and cons of modularisation set out by Ruth Jonathon in her article *'The Case for and against Modularisation'* in *Scottish Educational Review*, Volume 19, No.1, May 1987.

SECTION 6

THE AUSTRALIAN DEBATE ON COMPETENCY-BASED TRAINING

29

COMPETENCY-BASED PROGRAMS: A VIABLE ALTERNATIVE IN VOCATIONAL EDUCATION AND TRAINING*

ROGER McL. HARRIS, GEOFF BARNES AND BRIAN HAINES

R.McL. Harris, G. Barnes & B. Haines, 'Competency-based programs: A viable alternative in vocational education and training', *TAFE Journal of Research and Development*, vol.6, no.2, 1991, pp.1–18.

There is a rapidly increasing interest in competency-based programs in education (CBE) and training (CBT) within many countries. This paper outlines the interest shown in Australia, analyses the main features of the CBE/T model, explores some of the potential advantages and highlights the importance of careful planning in the implementation of such programs.

Introduction

Increasing demands for accountability, concerns for efficiency and emphasis on standards, quality and productivity have provided impetus for and interest in a variety of alternative models and patterns of training a skilled work-force in Australia. One of these alternatives is the competency-based education or training (CBE/CBT) model. However, such a model has been variously labelled (eg competency-based, work-based, standards-based, criterion-based, performance-based, etc), giving rise to a multitude of interpretations each with its particular emphasis. It can, in fact, mean many things to many people. There is a considerable divergence of opinion on the precise characteristics of such a model and consequently there have been many different critiques according to what writers have assumed the model to be (Harris and Schutte 1985). The purpose of this brief paper, then, is to analyse what the key features of the competency-based model are and to outline some of its potential advantages for students, educators, administrators and employers. Given the mounting attention within education and training to competency-based approaches, these issues assume no small significance.

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* This paper is based on a workshop conducted by the authors of the International Conference on Recent Research in Vocational Education, TAFE National Centre for Research and Development, Adelaide, March 1989.

One of the authors wrote almost ten years ago that the sporadic indications of interest in competency-based approaches in Australia could represent the signs either of spring or of Indian summer, and suggested several areas of education and training where this model could have useful application (Harris 1982). The time is now here, and the signs fertilised by considerable political commitment are suggesting that it is more spring than Indian summer, and that any premature forsaking of competency-based programs may well be 'tantamount to casting away the lifeboats on the Titanic in order to make more room to play conventional shuffleboard games'. (Peterson and Stakenas 1981, p. 356).

Australia's increasing interest in competency-based education/training

Australia is not alone in its interest in educational programs that increase emphasis on demonstrated competence rather than on time served as is the case with most apprenticeships. It appears that this aspect is giving this model of training an increasing popularity. Many American states and institutions—where much of the pioneering work in the late 1960s and 1970s was done—as well as Holland College in Canada have committed themselves to the CBE/T approach. Britain's National Council for Vocational Qualifications (NCVQ) is overseeing the creation of a new framework for vocational qualifications involving their redefinition on the basis of work-related competency. In June 1987, the NCVQ approved the first group of qualifications in this mode, and the government is planning to have the new system in place by 1991 (Hall 1987, p. 302; Burke 1989, p. 3). The movement towards CBE/T in the United Kingdom has been described by Tuxworth as being 'clear-cut ... with an obvious political commitment to the notion ... [and] now quite strong', but needing 'a great deal of development work ... accompanied by research' (Burke 1989, p. 21).

In Europe, the 1987 Australian Tripartite Mission to Study the Training of Skilled Workers in the metal and electrical trades noted that the training models in those countries with a high level of international competitiveness were competency-based (DOLAC 1988, p. 9). Both the European Economic Community and the UK have now adopted a framework for a standards-based system where standards relate to various classifications established in industrial awards on the one hand and to vocational educational qualifications on the other. There are five key levels of competence (National Training Board 1990, pp. 4-5).

Throughout Asia, too, there has been considerable attention to such a model, and numerous conferences and workshops have been conducted in many countries; for example, the Columbo Plan Staff College in the Philippines hosted a three-week training course on CBE/T in April 1990 for over 30 participants from 17 different member countries.

In Australia, various committees and working parties since 1982 have been discussing and suggesting the need for a greater emphasis on competency in apprenticeship training: for example the COSTAC Working Party on Recommendation 33 of the Kirby Committee of Inquiry into Labour Market Programs (1984) recommended that successful completion of a standards-based technical education course should be a prerequisite for trade qualification. A report entitled *Standards-based trade training—a discussion paper* (Nicholas Clark and Associates 1986) reinforced the significant benefits which would come from a competency-based system. The Commonwealth/State Working Group on Skills Shortages and Skills Formation (1986) recommended improvements in flexibility and quality of trade training, including emphasis on training to agreed standards of skills rather than for fixed periods. In September 1988 and March 1989 came the DOLAC (Departments of Labour Advisory Committee) *Competency-based trade training* discussion paper and report, designed to encourage and accelerate progress towards a competency-based training system.

These last two documents:

- identified the need for and potential benefits of moving the trade training system to a competency basis;
- identified components of such a system;
- proposed a framework for the development of a competency-based system;
- addressed a number of resource and legislative/administrative issues;
- recommended an incremental approach beginning with pilot arrangements for selected trades in 1989; and
- suggested a timetable and process for implementation, recommending it as a matter of 'high priority' and for 'substantial implementation' to be made by no later than 1993, and preferably earlier.

The Minister of Employment, Education and Training circulated a statement called *Improving Australia's training system*, in April 1989. When commenting on award structuring and entry-level training, it stated that the government would encourage reforms that would include:

- competency-based training of high quality;
- more flexible, broadly-based and modular training arrangements;
- national consistency in training standards and certification; and
- better articulation of on-the-job and off-the-job training and credit transfer between courses.

The government further indicated that training arrangements which failed to meet these new guidelines would no longer be eligible for commonwealth support.

Furthermore, in the May 1989 interim report by the Employment and Skill Formation Council, *Industry training in Australia: the need for change*, the council stated that training systems should give greater weight to programs designed to ensure individuals achieve specified skill standards. It considered that those training programs should produce improvements in responsiveness and efficiency through both core and specialist modules and self-directed packages. The council also noted the response to competency-based training by a range of interested parties including employers, unions, TAFE and relevant education and training providers. It was their view that competency-based training would ensure higher quality training that the time-serving approach used by most apprenticeship systems. Carmichael's paper for the council, *Award restructuring* (June 1989), again reiterated that successful implementation of restructured awards would require, *inter alia*, the progressive introduction of competency-based training, the improvement in responsiveness of training systems to industry needs and the development of coherent and consistent training standards.

The pace quickened in 1990. A number of initiatives occurring in different areas are worth highlighting to provide a sketch of some of the most recent 'signs of spring'. The National Training Board (NTB) was established to provide a focal point for the development of skill standards: it represents a new level of cooperation and consultation between commonwealth and state governments, employers and unions. Its discussion paper (National Training Board 1990) addressed the key issues of a standards framework for Australia, the process by which standards should be developed, the format and content of standards, and quality assurance matters.

Also in 1990, a second round of consultations with industrial parties on the principles and implementation of a competency-based system took place. A strategic framework for the implementation of such a system was published by COSTAC in November 1990, outlining implementation principles and issues, with the intention that this framework would provide the basis for the development of detailed plans to provide for 'substantial progress' towards the implementation of CBT by 1993 (COSTAC Working Party 1990).

In terms of research, a very comprehensive study (TAFE National Centre for Research and Development 1990) was undertaken in 1990 to determine the nature and extent of competency-based training available in TAFE. Its results have furnished valuable data on which responses and decisions can be made to assist the implementation of CBE/T in TAFE. In addition, a COSTAC overseas mission and a survey of private training providers were undertaken in the same year. And in December, two excellent research papers on competency-based standards and assessment in the professions were launched at the National Office of Overseas Skills Recognition Conference in Canberra. They were published to foster debate and to assist those working within the professions to develop competency standards and associated assessment methodologies (Gonczi, Hager and Oliver 1990; Masters and McCurry 1990).

Recently, the document, *National competency standards. Policy and guidelines* (National Training Board 1991) has been published, setting out the broad policy the NTB will follow in endorsing national competency standards and providing guidelines to those involved in developing them.

The last two years in particular have indeed witnessed an amount of debate research, pioneering activity and policy formulation. While much of the work thus far is:

- embryonic and skeletal, tentatively seeking the way forward in terms of policy frameworks, agreements, very broad principles and industrial relations issue.
- unequivocably driven by industrial standards with little consideration so far for the needs of adult learners, the nature of programs that are required for the development and assessment of individuals' competence or the extent of role change required on the part of educators and trainers, and
- often confusing in its terminology and concepts.

Nevertheless the direction of movement is unmistakeably clear. Whether the target of 'substantial implementation' is achieved by 1993 appears increasingly problematic, as does the extent to which the desired integration of on-the-job training and that provided by off-the-job agencies, including the main one, TAFE—can be attained by that time. Such goals may well take much longer than anticipated!

What is competency-based education/training

Against this background of recent reports that recommend changes and reform to existing training schemes, the competency-based system of training seems to have become increasingly highlighted and to have emerged as a viable alternative.

It is interesting to note that many authorities responsible for vocational education and training seem to be rushing to get involved and to implement such systems, now that they have become politically fashionable. Just a little while ago, however, very few wanted to get involved. But what do teachers/trainers know of the principles? Are they conversant with its advantages, or with the pitfalls and limitations of such programs? Is there any staff development? Staff responsible for implementing CBE/T programs may well ask: 'Where do I begin?' and 'Will my role change?' What then makes a training program competency-based?'

One of the first published definitions in Australia was that by the TAFE National Centre for Research and Development (1983). That centre defined CBE as an educational system that emphasises specification, learning and demonstration of knowledge, skills and behaviours that are of central importance to a given task, activity or career. Later came the Nicholas Clark report (1986) and the DOLAC papers (1988, 1989) which specifically identified two components of competency-based programs:

- *instruction*—characterised by the precise definition of competencies to be achieved to specific standards and under specific conditions, which became the performance objectives for the teaching/training process.
- *certification*—based on competency assessment, preferably relating to both on and off-the-job elements.

The essential feature of CBE/T was very clearly seen to be the move away from time to performance. This statement has since been endorsed by the Special Ministerial Conference on Training (28 April 1989) and as such, furnishes an official view on the essential conditions for a competency-based program. It is, however, only a starting point.

More recently, several sources in Australia have attempted to pinpoint the essence of CBE/T. Foyster (1990) derived a series of characteristics by analysing two case studies to illustrate different approaches to CBT—panelbeating in South Australia (Harris et al 1985, 1987) and food production in the UK (Kenyon and Hermann 1987). Acknowledging that 'some would argue with this classification' (p. 30), he listed six essential characteristics:

- an occupational/job analysis
- a focus on competencies
- learner access to statements of the competencies
- appropriate assessment procedures
- results reported as competencies achieved
- maintenance of detailed records.

As well, he singled out ten desirable characteristics. One could well argue that several of these latter items should be included as essential, especially 'a statement of criteria for each competency', but also 'detailed support materials', 'careful selection of competencies for each specific program' and 'integration of theory and practice, with an emphasis on applications'. Otherwise, there remains some contradiction between these sets of characteristics and the 'five major steps in the development of a CBT program' outlined in his introduction (p. 1) which do not, for instance, mention the development of standards or an assessment system.

Arguably the most enlightening as well as the most recent Australian analysis of CBE/T is that provided in *A strategic framework for the implementation of a competency-based training system* (November 1990). COSTAC's definition is as follows:

> Competency-based training is concerned with the attainment and demonstration of specified skills, knowledge and application to minimum industry specified standards rather than with an individual's achievement relative to that of others in a group. It is 'criterion-referenced' rather than 'norm-referenced' (p. 33).

The report then outlines what CBT requires, what it seeks to achieve and in what it can assist. Finally, there is a statement comprising 21 principles that are clustered in terms of scope, nature and implementation/administration (pp. 4-6). They are reputed to represent a broadly agreed framework for a CBT system, and are employed in that report as the basis for the 32 recommendations for implementing CBT in Australia.

Where these various overview analyses are not so helpful yet to practitioners (eg TAFE teachers) is in detail relating to program development and operation.

In this respect, there is much that we can learn from countries like the USA and the UK which have moved earlier and further than Australia towards this education/training model. Two of the earliest and most comprehensive frameworks for understanding CBE/T are those published by Norton et al (1980) and Blank (1982). The former defines CBE as having five essential elements and seven desirable characteristics. Using these elements, it is possible to construct an instrument for evaluating to what extent any program is competency-based (see Figure 1).

Figure 1: Instrument A* for evaluating the extent to which a program is competency-based

Directions: Indicate the extent to which the program being evaluated has implemented each of the following characteristics by ticking the appropriate column under Level of Implementation.

	Level of implementation			
	Poor	Fair	Good	Excellent
A. ESSENTIAL CHARACTERISTICS:				
1 Competencies to be achieved by learners have been:				
a carefully identified	☐	☐	☐	☐
b verified by local experts	☐	☐	☐	☐
c made public	☐	☐	☐	☐
2 Criteria for assessing each of the verified competencies have been:				
a derived from analysis of the competencies	☐	☐	☐	☐

	b explicitly stated along with conditions	☐	☐	☐	☐
	c made public	☐	☐	☐	☐
3	Instructional program provides for the:				
	a individual development of each competency	☐	☐	☐	☐
	b individual assessment of each competency	☐	☐	☐	☐
4	Assessment of the learners' competency:				
	a takes knowledge into account	☐	☐	☐	☐
	b takes attitudes into account	☐	☐	☐	☐
	c requires actual performance of the competency as the major source of evidence	☐	☐	☐	☐
5	Learners progress through the program:				
	a at their own rate	☐	☐	☐	☐
	b by demonstrating their competence	☐	☐	☐	☐
B.	DESIRABLE CHARACTERISTICS:				
6	Instruction is individualised to the maximum extent possible.	☐	☐	☐	☐
7	Learning experiences are guided by frequent feedback	☐	☐	☐	☐
8	Emphasis is upon learners' achievement of exit requirements	☐	☐	☐	☐
9	Instruction is individually paced rather than time-based	☐	☐	☐	☐
10	Instruction is field centred using realistic work situations and actual on-the-job experiences	☐	☐	☐	☐
11	Instructional materials:				
	a are in the modular format	☐	☐	☐	☐
	b include a variety of media	☐	☐	☐	☐
	c are flexible with both required and optional learning activities provided	☐	☐	☐	☐
12	Instructional program as a whole is carefully planned and systematic—evaluation data are used for program improvement.	☐	☐	☐	☐

Level of Implementation: In a fully implemented competency-based program, all items should receive an excellent response.

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* Adapted from: Norton, R.E. et al. Develop and implement a competency-based education program, Columbus: The Ohio State University, 1980.

The second helpful framework (Blank 1982) outlines four characteristics of CBT:

- What students learn—based solely on specific, precisely stated student outcomes, usually called competencies.
- How students learn—trainees are provided with high quality, carefully designed, student centred learning activities.
- When students proceed from task to task—each trainee is provided with enough time, within reason, to fully master the task before moving to the next task.
- If students learned each task—trainees are required to perform each task to a specified level of proficiency in an on-the-job setting before receiving credit for attaining each task. Performance is compared to a fixed set of standards.

These characteristics can also be expanded and developed into an instrument comprising seventeen questions to ask about a competency-based training program (see Figure 2). Before either of these two instruments could be used, however, terms like performance, criteria and mastery would need to be carefully defined.

Figure 2: Instrument B * for determining if a program is competency-based

Directions: Indicate whether the program has met the following conditions by ticking the appropriate column under Implementation.

		Implementation		
		YES	NO	N/A
1	Are the desired outcomes (competencies) of the program:	☐	☐	☐
a	based on the actual tasks performed on the job?	☐	☐	☐
b	specific, precisely stated and in writing?	☐	☐	☐
c	listed and made available to each new learner?			
d	updated at least annually?	☐	☐	☐
e	primarily skills resulting in a product or service for which someone would be willing to pay?	☐	☐	☐
2	Can a learner choose to master only those specific competencies required for employment in a specialised occupation offered within the program?	☐	☐	☐
3	Can learners skip instruction in those competencies for which they can demonstrate mastery?	☐	☐	☐
4	For competencies that are not sequential, can a learner select which competency to work on next?	☐	☐	☐
5	Is there a well-developed terminal performance objective written for each competency that clearly spells out:	☐	☐	☐
a	under what specific conditions the learner must perform the competency to demonstrate mastery?	☐	☐	☐
b	exactly what performance is required for mastery?	☐	☐	☐

c	the specific criteria by which mastery will be determined?	☐	☐	☐
6	Is each individual learner required to actually demonstrate mastery of each competency?	☐	☐	☐
7	Is the primary method of testing performance requiring the learner to perform each task in a joblike setting?	☐	☐	☐
8	Is mastery of each task defined as being able to actually perform the task at a high level (90 to 100%) of competence?	☐	☐	☐
9	Is each learner required and allowed to spend enough time on each task to reach a high level of mastery before being allowed or forced to move on to the next task?	☐	☐	☐
10	Is instruction for each task packaged in some way that:			
a	provides high-quality instruction?	☐	☐	☐
b	allows each learner to spend as much time on each task as needed to reach mastery?	☐	☐	☐
c	allows each learner to speed up, slow down, skip over or repeat parts of instruction as needed?	☐	☐	☐
d	presents instruction in only a part of the task at a time rather than in the entire task at once?	☐	☐	☐
e	provides for practice of what was presented?	☐	☐	☐
f	provides for immediate feedback on performance after each practice?	☐	☐	☐
g	incorrect practice is detected and corrected?	☐	☐	☐
h	allows the learner to practise the task correctly before being evaluated?	☐	☐	☐
11	Are learning resources and materials that actually deliver instruction:			
a	effective?	☐	☐	☐
b	appropriate for the task?	☐	☐	☐
c	appropriate for the learner?	☐	☐	☐
d	efficient?	☐	☐	☐
12	Is a physical learning environment provided that:			
a	promotes learner movement and activity?	☐	☐	☐
b	provides easy access to all learning resources needed for mastery tasks?	☐	☐	☐
c	provides a place where each task can be practised under supervised, controlled conditions?	☐	☐	☐
d	enhances learning?	☐	☐	☐
13	On any given day, are learners working on several different tasks either individually or in small groups?	☐	☐	☐

14 Is frequent instruction in large groups avoided?	☐	☐	☐
15 If grades are given, are they based solely on master of competencies?	☐	☐	☐
16 Does the teacher/trainer devote most of his/her time each day to helping individual learners learn, rather than teaching?	☐	☐	☐
17 Are facts, concepts, principles and other knowledge learned as an integral part of the job tasks for which this knowledge is needed?	☐	☐	☐

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* Adapted from: Blank, W.E. *Handbook for developing competency-based training programs.* Englewood Cliffs: Prentice-Hall, 1982.

A similar though more sophisticated approach was used in the national study on TAFE competency-based programs/courses (TAFE National Centre 1990). Programs and courses were included in the inventory if they met at least three of seven specified characteristics for CBT. Then personnel in the resultant 300 examples were interviewed using a comprehensive interview schedule. From the wealth of data generated, the main conclusions were that a very much smaller number of courses could actually be described as being competency-based, that these tended to concentrate on operative and certificate level courses in engineering and business studies, and that there is little integration of on and off-the-job training and assessment. It would seem, therefore, that both TAFE and the work-place have a long road to travel yet before the specified target of 'substantial implementation' by 1993 can be anywhere near met.

In summary, then, competency-based programs are characterised by carefully identified competencies with individualised learning experiences focusing on performance to clearly specified standards in an actual job-like setting. The approach has many features which, individually, educators have been espousing for a long time, including clear definition of objectives, frequent and immediate feedback, individualised and personalised instruction, and use of varied instructional resources. In addition, the main focus is on outcomes (i.e. what the student/trainee can actually do as a result of training). Assessment includes knowledge, skills and attitudes, and is based more on ability to perform than on knowledge exhibited through pencil and paper tests (Harris 1982).

Some potential advantages of competency-based education/training

Sophocles is said to have originated the thought that one must learn by doing the thing, for though you think you know it, you have no certainty until you try.

Therein lies the prime advantage of CBE—the emphasis upon each person actually performing each task. Inherent in this idea is the occupational relevance of the skills to be learned, and the specified standard to be attained. If these attributes are present, then not only will the student become more competent and employable, but also the trainer will become more confident in the current press for accountability and the employer will become more satisfied with the provision of highly skilled workers. But, it is worth repeating, the essential characteristics of CBE must be in place and adhered to for such benefits to be obtained. If they are not, the training system degenerates, diluted into a pale reflection of what it could be, where not all students reach required standards, time-based learning is the norm and the content is not always occupationally relevant. And that situation, according to the Minister for Employment, Education and Training (Mr J Dawkins) is not what the country needs.

> The urgency of the task of award structuring and training reform means that we will be continuing to give a high priority to issues such as national consistency (of vocational courses), competency-based training and improvements to accreditation. (*Advertiser*, 14 March 1989).

What, then, are some of the more specific benefits for the *student*? In a CBE program, each student can progress at his/her own best rate. Our research has shown that this aspect is one of the most visible and most desired advantages from the point of view of the student, both slow and fast learners (Harris et al 1985, 1987). In doing so, each student is able, provided alternative means of learning are available, to use his/her own preferred learning style, and to build self-confidence and self-reliance by succeeding at each task. This is especially important in TAFE, because quite often the learners, in comparison with those entering higher education, are those with little previous educational success. Another aspect found in our research (Harris et al 1987) is the cooperation, as distinct from the competition inherent in more traditional educational programs, between students while learning. Having work assessed against pre-established and public criteria rather than against class norms tends to engender a spirit in which students help one another to reach competence rather than compete for grades. The nature of the program, too, is known in advance, and the student can work hard through it, confident that the competencies have been rigorously identified and verified in and with the assistance of industry, and that the transcript gained at graduation will therefore record learning that is occupationally relevant and readily accepted in the work-place. Because the CBE program shifts the emphasis in education away from the teacher teaching and more to the learner learning, the program is most often preferred by students who enjoy the challenge and freedom to take responsibility for their own learning. It is also the case that the student is able to take major responsibility for the sequencing of that learning, thereby personalising the program to suit his/her readiness to tackle certain competencies at certain times.

For the *educator*, CBE/T implies a marked change in role. While this may at first be difficult to adjust to, the evidence suggests that those who have moved from traditional to competency-based programs never wish to return (Smith and Nagel 1979). Why is that? Basically it implies a shift from a provider of information (a 'teacher' or 'lecturer') to a manager of the learning *process* (a 'facilitator'). Provided one is comfortable in giving over the control inherent in a teacher-directed program, and can accept that he/she is able to be merely one of many resources available to students, then this role change becomes a very satisfying and personally rewarding one. Time is used more effectively in helping individual or small groups of students in their moments of real need and when *they* are ready; less time is required to prepare and deliver information-giving sessions (lectures?). More time is spent evaluating students' ability to perform essential occupational competencies; less time is required to develop and grade pencil-and-paper tests (examinations?). A CBE program encourages staff teamwork in managing student learning with the result that it can be more personally satisfying with individual staff specialising in various complementary roles.

For the *administrator*, CBE can mean a more efficient system, in the sense that more learners can achieve competence than is possible in group-centred instruction; many learners can achieve competence in a shorter period of time; and learners who have previously acquired skills and knowledge are not required to repeat this learning. In addition, building, equipment and resource materials can be used more efficiently; for example, two or three pieces of equipment may be all that is required rather than ten or twelve in a traditional program where all students undertake the same task at the same time. If the program is open entry and open exit, students are able to start at any time of the year, not just in February, and as soon as a vacancy appears through attrition or graduation, another student can be readily admitted to fill it. In this way, a CBE program allows a greater throughput as a consequence of always being up to student quota. There is the point, too, that such a program promotes greater accountability of students, educators and the program itself. One can feel confident that, with proficiency held constant and at a level mutually agreed upon by both employers and educators, the program and the graduate can stand up to rigorous public and professional scrutiny. One can also feel confident that, through clearly stated competency statements and program parameters, articulation can be more effectively made among the various sectors of education as well as between education and industry training.

These advantages would appear to be particularly important in the light of government, industry and education pressures to raise standards in the workforce and to increase the extent of collaboration and credit-giving among the various training agencies.

For *business and industry*, a CBE program encourages by definition very substantial involvement of and consultation with industry experts both in the identification and verification of competencies and in establishing performance criteria and other industrial expectations. This results in more collaborative and more trusting relationships with the educational sectors than has traditionally been the case. As a consequence of clear program statements and transcripts of student competence, employers are more readily able to understand and fully utilise the skills of CBE graduates, as well as to identify where further training may be required in their work-force. Moreover, they may more easily be able to recognise where their own organisation can contribute to the training of employers on-the-job. Again, this would be in line with present political thinking, where it is envisaged that there will be much greater integration of on and off-the-job training in meeting the specifications of skill schedules (DOLAC 1988).

The importance of careful planning for implementation

Grant (1979, p. 5) pointed out twelve years ago that:

> One cannot be for or against competency-based education any more than one can be for or against testing. One has to ask: What kind of competence program? For what purpose? Under what conditions?

These questions are very important, for there are certainly concerns, limitations and potential pitfalls. Some of these are fundamental. For example, there is the danger of excessive reductionism, the analysing of competence into minute pieces (the 'whole is more than the sum of the parts' contention); or the pitfall of restrictive behaviourism, the limiting of all data on human activity to publicly observable facts; or the limitation of the quest for certainty in human affairs, the over-reliance on prepackaged learning activities and resources from competency-based recipes to the exclusion of the reflective interaction of persons in actual situations. There is the concern that such programs bear the stamp of the industrial-commercial nexus and its approach to productivity and efficiency and the appropriateness of transferring these norms and modes of operation into other dimensions of human activity; or the concern over the extent to which the deterministic intent of competency statements may violate adult learning principles.

Others are of a more practical nature. There are concerns about the costs of setting up such programs; about the shortage of high quality learning materials; about the extent of instructor resistance, either through the hard work required, role conflicts, job threats or the perceived stifling of instructor creativity; and about the possibility of lowering rather than raising standards (Blank 1982; Collins 1987).

If CBE/T programs are to be effective, it is very clear that all of these aspects must be thoughtfully tackled and each program very carefully planned and trialled. It is true that implementation, (if these issues have not been adequately debated and dealt with), is the link in the chain where CBE/T programs either fail or are not as effective as expected. Implementation is not at all a simple matter and has represented the Archilles' heel at which critics nearly always take aim. Implementation, then, is the linchpin. While educational philosophy may sound grand, there will always be Davids around who can make Goliath-slaying seem a simple affair unless that philosophy is put into practice with a great deal of care. As a book is often judged by its cover, so it is that the most readily observed aspects of CBE/T are often the first to be attacked by critics whose espouse another philosophy or desire no change. It was Tuxworth (in Burke 1989, p. 16) who pointed out the irony in the fact that the application of competency-based approaches to American vocational education and training had to be led by teacher training. Perhaps, then, we would do well to heed the advice of Howsam (1973, p. 213) regarding performance-based teacher education eighteen years ago:

> It behoves those who undertake the implementation of PBTE to look with care at the total system required, to identify the subsystem elements, and to ensure that the critical elements are capable of delivering. Failure to do so risks both the undertaking, and in the larger sense, the movement.

Conclusion

This paper is about the main characteristics and potential advantages for the student, educator, administrator and employer, of well designed, carefully implemented and regularly evaluated competency-based programs. As the DOLAC (1988, p. 10) discussion paper stated,

> There is sufficient evidence to support the proposition that the introduction of a competency-based trade training system Australia-wide would bring substantial benefits. On balance, these benefits outweigh the efforts required to appropriately address issues … in respect the introduction and operation of a competency-based trade training system.

This paper was, in fact, echoing the conclusion of Nicholas Clark and Associates (1986, p. 73), whose study had stated that 'there are strong educational and economic arguments for pursuing standards-based trade training; and that in fact, 'in many ways trade training across Australia is moving in the direction of standards-based training'.

That was five years ago and a lot of water has passed under the bridge since. It is high time now we all tried to understand what the competency-based approach means and implies, and where its potential advantages lie. That has been the purpose of this paper, setting it within the wider context of recent debates, developments and publications.

References

Australian Science and Technology Council (1987). *Wealth from skills*. Canberra: AGPS.

Blank, E.W. (1982). *Handbook for developing competency-based training programs*. Englewood Cliffs, NJ: Prentice-Hall.

Burke, J.W. (1989). *Competency-based education and training*. London: Falmer Press.

Carmichael, L. (1989). *Award restructuring: implications for skill formation and training*. Canberra: Employment and Skills Formation Council.

Collins, M. (1987). *Competence in adult education. A new perspective*. Lanham, MD: University Press of America.

COSTAC Working Party (1990). *A strategic framework for the implementation of a competency-based training system*. Canberra: COSTAC.

Department of Employment, Education and Training (1987). *Skills for Australia*. Canberra; AGPS (reprinted 1988).

Department of Employment, Education and Training (1989). *Improving Australia's training system*. Canberra: AGPS.

Department of Employment, Education and Training (1989). *Industry training in Australia: the need for change*. Canberra: AGPS.

Department of Trade (1987). *Australia reconstructed*. ACTU/TDC Mission to Western Europe. Canberra: AGPS.

DOLAC (1988 and 1989). *Competency-based trade training*. Canberra: Departments of Labour Advisory Committee.

Field, L. (1990). *Skilling Australia: a handbook for trainers and TAFE teachers*. Melbourne: Longman.

Foyster, J. (1990). *Getting to grips with competency-based training and assessment*. Adelaide: TAFE National Centre for Research and Development.

Grant, G. et al (1979). *On competence. A critical analysis of competence-based reforms in higher education*. San Francisco: Jossey-Bass.

Gonczi, A., Hager, P. and Oliver, L. (1990). *Establishing competency-based standards in the professions*. Canberra: AGPS.

Hall, V. (1987). *National Council for Vocational Qualifications and Further education*. Coombe Lodge Report, **20**(5).

Harris, R. McL. (1982). Spring or Indian summer: competency-based approaches in Australian post-secondary education, *Australian Journal of Adult Education*, **22**(2), 3-11.

Harris, R. McL., Barnes, G.T., Haines, B.E. and Hobart, R.B. (1985). *Competency-based vocational education—an evaluation. CBVE or not to be?* Commissioned Report No. 9. Adelaide: TAFE National Centre for Research and Development.

Harris, R. McL., Barnes, G.T., Haines, B.E., Hobart, R.B. and Candy, P.C. (1987). *Competency-based vocational education—a continuing evaluation*. Adelaide: TAFE National Centre for Research and Development.

Harris, R. McL., and Schutte, K. (1985). A review of competency-based occupational education in Mountney, P. and Mageean, P. (eds). *Issues in TAFE*. Adelaide: TAFE National Centre for Research and Development, pp. 43-65.

Howsam, R.B. (1973). Management of P.B.T.E. programs, *Journal of Teacher Education* **24**(3), 213-220.

Kenyon, B. and Hermann, G. (1987). *Competency-based vocational education*. London: Further Education Unit.

Masters, G.N. and McCurry, D. (1990). *Competency-based assessment in the professions*. Canberra: AGPS.

McDonald, C. (1984). *Self learning*. Occasional Paper No. 6. Adelaide: TAFE National Centre for Research and Development.

National Training Board (1990). *Setting national skill standards*. Canberra: NTB Limited.

National Training Board (1991). *National competency standards*. Policy and guidelines. Canberra: NTB Limited.

Nicholas Clark and Associates (1986). *Standards-based trade training—a discussion paper*. Commissioned by the (then) National Training Council.

Norton, R.E. Harrington, L.G. and Fardig, G.E. (1980). *Develop and implement a competency-based education program*. Columbus: Ohio State University.

Peterson, G.W. and Stakenas, R.G. (1981). Performance-based education: method for preserving quality, equal opportunity and economy in public higher education, *Journal of Higher Education*, **52**(4), July-August, 352-368.

Smith, H.R. and Nagel, T.S. (1979). From traditional to CBTE—and never back again, *Phi Delta Kappan*, **61**(3), 194-195.

TAFE National Centre for Research and Development (1983). *Draft glossary of TAFE terms*. Adelaide: TAFE National Centre for Research and Development.

TAFE National Centre for Research and Development (1990). *Competency-based training in TAFE. An inventory and report of competency-based approaches in TAFE vocational courses and programs in Australia*. Adelaide: TAFE National Centre for Research and Development.

Thompson, J. (1985). *Individualised systems of instruction in TAFE colleges*. Adelaide: TAFE National Centre for Research and Development.

IMPLEMENTING COMPETENCY-BASED VOCATIONAL EDUCATION: A VIEW FROM WITHIN

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Introduction

In the search for more efficient teaching and more effective utilization of instructional resources, many institutions particularly in technical fields, have gravitated towards methods of teaching which emphasize modular curricula, individualized self-paced instruction and mastery of clearly specified standards of performance. Although such strategies have proved ineffective in some areas of education, and are anathema to at least some teachers, an approach which embodies these characteristics—Competency Based Vocational Education (CBVE)—has been sufficiently successful, both in Australia and abroad, to warrant more detailed study and experimentation.

In 1983, responding to the need to change its existing approach, and in view of successful experiences in similar institutions elsewhere, the Croydon Park College of Technical and Further Education (TAFE) in South Australia decided to embark on a programme of Competency Based Vocational Education in the area of panelbeating. The TAFE National Centre for Research and Development commissioned a study into the design, implementation and evaluation of the programme, in order to investigate its potential as an alternative model of occupational training. The report of that study was published in 1985 under the title *Competency-based Vocational Education: An Evaluation* (Harris *et al.*, 1985).

At the conclusion of the first year, it was decided to extend the project evaluation. Accordingly, over the years 1983, 1984 and 1985, data were collected from staff, students, administrators and employers concerning the implementation and extension of the CBVE approach to all three years of the panel-beating course. Over that three-year period, a great deal of information was assembled. Some of it was positive, some was negative; some portrayed the experiences of students (both 'new' students and those who had 'grown up' with the competency-based approach), some represented the perspectives of staff members and administrators, and some reflected the views of employers. Overall, it comprised an extremely rich and varied record which reflects, often in fine detail, the complexities of an educational intervention and of its effects on the people involved.

In this paper, the perspective of the staff members most intimately involved with the introduction of CBVE is portrayed. The story could as well be written (and indeed has been) from the perspective of the students. However, it is particularly interesting to examine how this particular staff group reacted to an innovation which made quite significant demands on both their time and their professional commitment and which, by its very nature, forced some of the most intimate aspects of teaching (including teamwork, evaluation, subject matter competence and staff/student relationships) out into the open for public scrutiny and debate. More than simply the report of an educational experiment then, this is a story 'in the words of the faculty' (Seidman, 1985) of what happens when a major innovation is attempted within an on-going course.

Background to CBVE

Competency-based vocational education, like most innovative approaches to instruction, has had a chequered career. Vilified by some, and hailed by others, it has been tried out in a range of settings with varied success (Grant, 1979; Hall, 1987; Harris, 1982; Harris and Schutte 1985; Kentucky Department of Education, 1978; Knaak 1977). As mentioned earlier, competency-based vocational education has certain distinctive features. From an analysis of the literature (see, for example, Blank, 1982; DEET, 1988; DOLAC, 1988; Hobart and Harris, 1980, OSU, 1986; Thompson, 1985), these features may be summarised as follows:

(i) the pre-specification of individual competencies to be attained;

(ii) the modularisation of the curriculum, with each component building on the cumulative attainment of the preceding modules;

(iii) individualization of instruction, so that learners are free to progress at their own rate; and

(iv) identification of precise standards of performance to be achieved and demonstrated by learners before progressing.

Many educators find such an approach excessively mechanistic; others criticize it for focussing only on observable and frequently trivial learning outcomes; and others again attack the epistemological basis of CBVE, arguing that knowledge simply is not amenable to such rigid compartmentalisation. However, notwithstanding these criticisms, CBVE has attracted a lot of positive support, and a number of advantages are claimed by its advocates. These include:

(i) the existence of public criteria for success by students, which leads to less subjectivity in marking;

(ii) because learners 'teach themselves', there is more time for staff to spend with students experiencing difficulties;

(iii) the self-paced nature of the approach allows opportunities for higher ability students to undertake extension work;

(iv) better use is made of hardware and workshop equipment because of staggered progress;

(v) the CBVE approach is more motivating than conventional teaching strategies because learners exercise more discretion over pacing, sequence and mode of learning; and

(vi) learning outcomes are more enduring because of the requirement for demonstrated 'mastery' before progressing to more advanced skill levels.

Whatever the validity or otherwise of such claims, the fact remains that CBVE differs radically from more conventional approaches to teaching and learning, not least because it involves a dramatic change in the role of the teacher—from lecturer/demonstrator of *instruction* to facilitator/manager of *learning*. Clearly such an approach also has important implications for students and indeed for the whole teaching/learning relationship.

Methodology of the study

The investigators were intimately involved in the implementation of CBVE of Croydon Park College. Thoughout the three years of the project, members of the investigating team regularly attended meetings of the panelbeating staff group. Furthermore, they contributed to a staff development seminar on CBVE held in February 1984, and arranged for a programme of staff development workshops on Computer Assisted Learned to be conducted during the second half of 1985. In addition to these continuing contacts, a questionnaire was administrated to all staff involved in the CBVE programme at the end of 1983, and at the conclusion of the evaluation study in early 1986.

As a result, the following discussion presents the major issues of concern to the staff group illustrated, where appropriate, by representative quotations and supported by comparative data obtained from the questionnaire at the end of the first and third years of the project.

Results

In the study, staff were asked not only about how CBVE affected their own role, but a wide range of other questions about its perceived effect on students, on employers, on the College administration and on teaching generally. Although this information is interesting, it has been decided here to limit the discussion to three factors; its impact on the their role as teachers, its impact on students and its impact on the general management of the programme as a whole. Full details of the study are to be found in Harris *et al.*, *Competency-based Vocational Education: A Continuing Evaluation* (1987).

Impact of CBVE on themselves as teaching staff

The impact of CBVE on the staff was a particularly vital area to assess, for the success of otherwise of any educational innovation—CBVE being no exception—is likely to depend principally upon how it is viewed by those expected to implement it. In the case of CBVE, one of the most dramatic changes is in the role of the teacher—from directing instruction to facilitating learning. The former role is the one with which staff are most familiar, and the degree to which the change in role can be accomplished with comfort and commitment is likely to influence the degree to which a novel programme is successful.

The reactions of staff participating in this programme are here subdivided under five headings: relationships with students; relationships with other staff;

teaching activities; managerial aspects; and overall comparison of staff responsibilities in CBVE and traditional programmes.

Relationships with students

The critical issue concerning relationships was the staff's level of personal satisfaction with teaching in the CBVE programme. In 1983, all staff had expressed personal satisfaction: seven were more satisfied, two felt the same level of satisfaction, and none was less satisfied with teaching in CBVE than in a traditional programme.

A telling shift had occurred by early 1986. As many as *six* lecturers said they were not personally satisfied with teaching in CBVE; the other three said they were. Four went on to declare that they were less satisfied than they had been in the traditional programme; another four said they were more satisfied, while the other one declined to make a comparison and instead commented:

> I feel that CBVE is great in some situations but is not suited here because some lessons could be better presented in chalk and talk groups.

Those who were satisfied made these kinds of comments:

> I enjoy teaching in the CBVE programme but would like to see improvements carried out. The one-to-one teaching relationships possible I find rewarding.
>
> I like students having to achieve competency to progress.
>
> Because it is student-centred, not teacher-centred. Also, it is the way students work at work.

Each reason offered here implies advantages in the CBVE approach. However, it is perhaps even more enlightening to review the responses of staff who were not personally satisfied:

> It frustrates me to see how these students perform the theoretical side of each module. They seem to expect all information to be given in the yellow Information Booklet. Textbooks and research are burdens.
>
> As lecturer, one has much less control, doesn't get to know the students as well. As for discipline, what's that?
>
> We don't seem to be able to stick to a uniform standard and the team spirit here is far from good. The lazy students seem to be able to do very little with CBVE; with the traditional-type training, the teacher seems to be able to motivate them more easily and exercise greater control.
>
> Although difficulties are recognised, little is done to correct them. Teachers got to know individual students better in the traditional system, and had more influence.
>
> Theory too easy. So much copying of other students' books. No theory retention. Regardless of time barriers, students learned the theoretical aspects before attempting practical. Their practical projects were good.

Quite clearly, staff dissatisfaction was seen to relate directly to such factors as loss of teacher control and influence, poor team spirit in a system that makes teamwork very visible, low student motivation, and a distinct feeling of powerlessness over decision-making and problem-solving processes.

Comments from lecturers clearly indicated that student motivation was, as it had been in 1983, still a key issue. It is interesting that not one staff member chose the response, 'Students are motivated and interested in the trade'. Some staff believed that the more capable and older students were motivated, but that many of the others could be easily distracted. One lecturer expressed it in this way: 'this programme tends to allow less motivated students to be less motivated'. A concomitant issue was discipline. Some of the staff claimed they had tried to discipline students but it had not worked. Again, the feeling of powerlessness was very evident:

> Lecturers appear to be powerless in this. Lazy and disruptive students should be removed. This would at least keep the better ones working and improving.
>
> Lazy and disruptive students are allowed too much leniency by management instead of being removed from the class and sent back to work till their attitude changes.
>
> Lecturers have few powers to discipline a student. When sent to management, they are let off too leniently. This results in diminished respect towards lecturers.
>
> When discipline is applied to students, no help from management.

One lecturer stated that 'CBVE would work far better with more mature students', while another commented that 'most cases [of disciplinary problems] are due to students not wishing to remain in the trade.' Another lecturer believed that at least some disciplinary problems related to teacher inconsistency in assessment:

> Teachers are unable to maintain a uniform standard amongst themselves, thereby allowing students to slip through. Students work out very quickly the teachers who are too soft. Those teachers which maintain a standard, e.g. conform to checklist requirements, are not liked by some students and this causes discipline problems.

This factor was also frequently commented upon by the students themselves.

Half of the staff felt that actual contact with students was generally appropriate, while a few mentioned there was insufficient time for individual contact. All stated that their availability to students had changed at least to 'some' extent, with four saying 'a great deal'. This point, too, had been raised very frequently and strongly by students. Staff who commented on this matter referred to the lack of reading on the part of students:

> Students do not read what is required of them, and thereby waste precious time of lecturers with trivial inquiries.
>
> Students don't both to read Information Booklet or Checklist.

or to the demands made by slower learners:

> The faster student tends not to need the lecturer as much. However, the slower one requires more time than what we have available.

Relationships with other staff

A second major area of the research concerned the changed nature of professional relationships under CBVE. Six lecturers felt that other staff helped out and cooperated when necessary, but there were three who claimed that some others were 'not helpful or cooperative'. Comments on this matter included:

> Some staff members do not give much time to CBVE development.
>
> Consistency amongst staff is about the only problem in this area.
>
> Team spirit is non-existent.

Another question directly asked lecturers, 'How much have your relationships with other staff members changed (as a result of the introduction of CBVE)?' While relationships with Automotive School Staff and ancillary staff were seen to have altered 'not at all', most of the lecturers perceived their relationships with other panelbeating staff to have changed 'some', 'a lot' or 'a great deal'. This is a key aspect, for it underlines the significance of the change of role from teacher to resource person and the concomitant emphasis upon cooperation and teamwork among CBVE staff. This was expressed by two staff in the following ways:

> Closer working relationship e.g., relies heavily on team teaching techniques.
>
> It has brought us closer together as regards to standards. Hopefully we all may aim at the same standard one day.

One lecturer, however, saw the situation quite differently:

> Dissatisfaction with each other's performance could be due to a general slump in staff morale.

Teaching activities

Although relationships are an important aspect of job satisfaction, clearly staff attitudes towards the work itself are also vital. Accordingly, in order to understand what the lecturers were thinking and feeling about their change of role within the CBVE programme, a third aspect of the study asked a series of questions on various aspects of their professional role and work situation.

Teaching load

Two thirds of the lecturers said their teaching load was 'too large'. They expressed concern that no time seemed to be available to polish learning materials or to develop computer tests, let alone to update themselves on new technology. Their other main point here was that the function of the resource person in the Resource Room was excessive, often with 'several students wasting [sic] time waiting for their turn' to have theory checked or problems solved. One teaching concluded:

> If anyone has ever truly experienced CBVE, then one can understand that CBVE is far more demanding of lecturers.

Half of the teaching staff also commented that too much time was expected of them. Although all thought that there was little or no chance to get involved in extra activities.

Preparation time

Just over half of the lecturers considered that there was 'not enough' preparation time available, with one explaining in his own brand of reasoning:

'One needs to be prepared for the whole three years' work, not just for one lesson. Therefore, logic tells me that more time is required.'

Marking/assessing

The general opinion was that the assessment policy was appropriate, though three staff in particular indicated reservations about consistency in marking, another problem area that students had also frequently raised:

> There is no marking as such, but different interpretations are placed on checklist requirements.
>
> Some areas need to be tightened up. Staff don't stick to standards.
>
> Insufficient adherence to checklist requirements.

Another lecturer thought the item 'irrelevant', because:

> previous to this year no assessment (had) been done!

Supervising students

The over whelming response on this item was, as in 1983, 'can't be in two places at the same time' (7 lecturers). One lecturer felt that the 'workshop layout [made] student supervision difficult in practical sessions'; another also referred to the spread of students over too large an area, which may result in a student, unless he/she requests assistance, being practically unsupervised all day, while a third drew attention to the difficulty of checking whether students 'sub-let their practical work to a learner who is of mastery standard', or 'use other students' Student Guides to find answers'. 'This problem', he concluded, 'is very hard to *police*' (emphasis added).

Motivating students

It was clear that, while lecturers were very critical of their students' motivation, they did not consider themselves as bearing any responsibility. Six said that they 'always try to motivate', and another two that they 'sometimes try to motivate'. One comment was the following: 'Some learners feel that they are doing me a favour by coming to school'.

Using the course materials

Most of the staff thought that they were familiar with all of the materials, although one qualified his answer by adding 'except the recent changes'. The need for a lecturer to be familiar *all* of the time with *all* of the material was highlighted, and in this respect, one lecturer openly admitted that 'the Answer Booklets prop up my knowledge sometimes'.

Helping slower students

One of the claimed advantages of CBVE is that it leaves more time for teachers to help slower students, but there was considerable diversity of opinion as to how much time the programme actually allowed for helping slower students. Two lecturers said 'no time', three 'insufficient time', two 'adequate time', and another 'a great deal of time'. It may well be that too frequent checking of work, one aspect raised by students, contributed to this 'busyness'. One lecturer simply put it down to 'teacher–student ratio'. Another, who had said there was adequate time, said he sometimes used advanced apprentices to demonstrate to the slower students, which would seem to provide one potential solution to the problem, a solution in line with the use of proctors, in Keller's Personalized System of Instruction model (Andres 1979; Macdonald 1980, 1984).

Satisfying higher ability students

Similarly, there was a range of responses to this item. Three lecturers did not think either the course structure or facilities allowed for special attention to be bestowed on such students; another three believed that there was adequate time for such activity. A few made the point that the idea of incentives for such students needed to be further developed (e.g., finish the course early, or proceed to a course in basic colour matching). One lecturer thought that the high ability students made very low demands on the lecturers.

Managerial aspects

In addition to those aspects of their job essentially concerned with teaching, lecturers were also asked a series of questions on the management of the CBVE programme. Their responses on this fourth component of the study are summarised below.

Attending to paper-work

The mount of paper-work involved in the CBVE programme seemed not to be a problem. All lecturers believed it was an average amount which they could handle. The Senior Lecturer commented that there was actually less day-to-day paper work, though there were difficulties in software production and maintenance.

Workshop arrangement

Almost all lecturers (and the Deputy Head) agreed that the workshop arrangement was too crowded and that more space was required. Many of the lecturers also added that there was not enough equipment, or that existing equipment was worn. Two explanations centred on the increased usage under

> All equipment gets far more use, and therefore greater maintenance is required.
>
> The abuse that the equipment (welders, video recorders, slide-tape projectors) receives is heavy. The students seem not to worry about any damage.

Maintaining safety requirements

Almost all lecturers said that they try to maintain safety requirements and urge students' cooperation. Two, however, claimed difficulty in this area because of the overcrowded workshops. One of these also added that, under CBVE, the workshops had 'got much noisier!' However, with at least some students at any one time away in the relative peace of the Resource Room in a CBVE programme—which would not happen in a conventional programme—it is difficult to envisage exactly how CBVE has made these areas 'much noisier!'

Visitors observing the programme

Because of the experimental nature of the programme, the College attracted an unusually high number of visitors from the trade and from other educational institutions. It was interesting to note however that, despite the concerns over time, no lecturers felt there were too many visitors who might disturb students and staff. Five considered that visitors posed no problems, and three others actually said they enjoyed having visitors observing the CBVE programme.

Overall comparison of staff responsibilities between CBVE and traditional programme

Perhaps the most significant item in gauging staff reaction to the CBVE programme was their comparison of various aspects of the new programme with similar aspects of a traditional programme. Such a comparison was considered to be worth requesting because the lecturers (unlike most of the students) had experience of both models of training.

Analysis of staff responses in late 1983 and early 1986 is presented in Table 1.

The 1986 data show that the lecturers unanimously agreed, as they did in 1983, that CBVE was better accommodating individual student differences. CBVE was also clearly judged to be better in terms of the following eight areas:

- making course objectives clear to students,
- time taken in recording results,
- using a variety of instructional methods,
- planning the course,
- extending high ability students,
- allowing more students to achieve syllabus objectives,
- testing students fairly and validly, and
- evaluating students.

Table 1 Comparison of teaching duties and responsibilities between CBVE and traditional programs

		Teachers opinions in late 1983 (%)			Teachers opinions in early 1986 (%)		
		Better	Similar	Worse	Better	Similar	Worse
xxi)	Catering for student individual differences	100	–	–	100	–	–
xv)	Time recording results	63	–	37	100	–	–
iii)	Making the course objectives clear to students	88	12	–	89	11	–
iv)	Using a wide variety of instructional methods	88	12	–	88	–	13
xx)	Planning of the course	63	37	–	86	14	–
xxiii)	Extending high ability students	63	24	12	86	14	–
i)	Allowing more students to achieve syllabus objectives	100	–	–	78	22	–
xiv)	Testing students fairly and validly	88	12	–	78	22	–
viii)	Evaluating students	75	25	–	67	22	11
ii)	Making the course objectives clear to students	63	37	–	56	44	–
vi)	Providing feedback to students	88	12	–	56	33	11
xi)	Relating theory to practical work	75	12	12	56	33	11
v)	Using a wide variety of instructional equipment	75	25	–	50	38	13
vii)	Providing feedback to lecturers about students progress	43	43	14	50	38	13
xvii)	Giving lecturers time to assist and guide students	50	–	50	38	25	38
xxii)	Helping lecturers identify those students needing extra help	63	37	–	38	38	25
xix)	Making a lecturer available when a student needs him/her	25	50	25	33	33	33
xxiv)	Catering for weaker students	63	37	–	33	33	33
x)	Interest to students	63	37	–	33	56	11
xii)	Keeping students active	57	–	43	33	22	44
xiii)	Use of student time	50	37	12	25	25	50
ix)	Motivating students	63	–	37	13	25	63
xvi)	Emphasis on theoretical knowledge	no results			13	38	50
viii)	Giving lecturers time to prepare lectures	not applicable			not applicable		
Note:	Items in this table have been re-ordered in descending order of the extent to which CBVE was seen by lecturers in early 1986 as "better" than traditional approach						

Lecturers also generally felt that CBVE was superior in another five areas listed below:

- making the course objectives clear to staff,
- providing feedback to students,
- relating theory to practical work,
- using a wide variety of instructional equipment, and
- providing feedback to lecturers about student progress.

The findings favourable towards CBVE approach, were consistent across the two survey times. In contrast with the 1983 results, however, where staff claimed that in no area was CBVE inferior to a traditional programme, by early 1986, with the benefit of additional experience they were saying that in four areas, a traditional programme was better than CBVE:

- emphasis on theoretical knowledge,
- motivating students,
- use of student time, and
- keeping students active.

It is to be noted here that the two issues of student motivation and problems with theory were consistently referred to in other areas of the full report.

While there was a general lessening in positive opinions on the CBVE programme over this period, there were five areas where staff were *more* favourable in 1986 than they were in 1983: time recording results, planning the course, extending high ability students, providing feedback to lecturers about student progress, and making staff available when needed. In the first three cases, the increase was quite substantial.

In summary, it seems reasonable to conclude that, in general terms, lecturers still felt three years after its introduction that CBVE was superior to the traditional-type programme in the majority of the responsibilities investigated, and was at least its equal in a few others. Only in four areas related to student motivation and theoretical knowledge was the CBVE approach perceived by early 1986 as being inferior.

Impact on students

In addition to being asked about the impact of CBVE on their role as teachers, staff were also asked to comment on how they thought CBVE had affected students. Two main categories of response were identified: student attitudes and learning performance.

Student attitudes

There were unanimous agreement that students appeared to be satisfied with the CBVE programme, though some of the responses were qualified in the open-ended explanations that followed:

> The majority of students appear satisfied with CBVE, but complain about quality of software and shortage of teachers.
>
> The faster student—yes; the slower one—no.
>
> High ability students in particular are [satisfied], average students and below are not.
>
> The majority are satisfied. A few still would like to be driven.

Although several staff members judged CBVE to be most suitable for the capable, well motivated students, others thought it appropriate for a wide range of ability levels:

> Suits all types e.g., keen, lazy, slow, fast, etc.
>
> It is a very easy system to participate in and succeed.

In general, students like to achieve at their own pace.

Students find it easier than traditional learning programmes.

To confirm these results, another important set of questions requested staff to compare the attitudes of students under CBVE with the attitudes of students who had studied panelbeating in earlier traditional courses. Table 2 shows the distribution of responses of the staff in early 1986 compared with their responses in late 1983. The large number of 'can't say' responses of 1983 was taken in the first report to represent the answers of those staff members who were not really involved in the first year of the CBVE programme. The numbers of such responses by 1986 had decreased somewhat, but were still fairly high, indicating that students were genuinely finding it difficult to evaluate student attitudes.

Table 2 Student attitudes towards CBVE and the traditional course, as perceived by teachers

When compared with the traditional course, how do students' attitudes in CBVE compare regarding the following?	Teachers' perceptions in late 1983				Teachers' perceptions in early 1986			
	Better	Same	Worse	Can't say	Better	Same	Worse	Can't say
1. the course/trade	5	2	–	4	2	6	–	2
2. theory	4	3	1	3	3	3	3	1
3. practical work	7	–	1	3	6	1	1	2
4. College in general	3	3	–	5	–	5	–	5
5. other students	3	3	1	4	2	4	1	3
6. the lecturers	3	4	–	4	–	5	2	3
7. their own progress	7	–	–	4	7	–	–	3
8. ancillary staff	1	4	1	5	–	7	1	2

It can be seen that there was a *continuing clear indication from staff that, under CBVE, student attitudes towards their own progress and practical work were better*. In all other respects, staff believed that students' attitudes were more or less the same as in a traditional programme. Compared with the figures of 1983, however, the staff perceived student attitudes as having worsened in the areas of course/trade and relationships with lecturers, and to a lesser extent, towards the College in general. While the 1983 figures, overall, had shown that the CBVE approach tended to result in improved attitudes across the range of variables, those for 1986 were certainly not so optimistic. Only in two areas (students' own progress and practical work) did staff see student attitudes as considerably better under CBVE.

In considering these results, it is important to bear in mind that, throughout the three years of the programme, staff members had participated in continuing staff development meetings concerning CBVE. It may well be that the ambivalence reflected in the staff's responses reflects the conflict between their own practical experiences, and the more positive outcomes they had been led to expect through the staff development exercise.

Learning performance

The other major set of data about students concerned their levels of learning performance under CBVE. The staff were clearly impressed, for they all claimed that students had the opportunity to achieve good results in the standard of work, and two thirds stated that these results were better in the CBVE than in the traditional programme. Only one considered the results to be worse, for some students. The reasons they gave for a better performance in CBVE related to performance criteria, self-pacing, opportunity for personalised assistance, amount of practice and the necessity to attain mastery to progress:

> The standard to be achieved is listed and is generally high.
>
> The student has the time and equipment necessary to achieve a high standard.
>
> Due to the fact that they work at their own pace.
>
> The good students excel, and the slow learners get assistance through one-to-one instruction.
>
> Because of the amount of practice made available to the learner.
>
> They have to achieve competency—so standard of work must be high.
>
> Better—because each student must develop skills in each project.

One lecturer gave a particularly revealing answer in comparing student performance under the two types of programme:

> Some areas better, some the same. The traditional programme may have achieved better results on major repairs *when the teacher did a lot of the work* (emphasis added).

Further opinions on student performance can be gleaned from Table 3.

It can be seen that, as in 1983, lecturers agreed that *the CBVE approach allowed increased time for mastery, produced a generally higher standard of performance in practical work, and gave low ability as well as high ability students better opportunities to learn and attain excellence*. Most lecturers also considered that CBVE prepared students to move more smoothly from theory to practical. The two aspects which staff believed were suffering under CBVE were the production of high standards in theoretical learning and the programme's ability to reduce forgetting. In many respects, these two aspects can be seen to be very much interrelated, and the issue of needing to improve students' learning of theory has been raised in other sections of this paper as an area for improvement.

In summary, it would seem 'on the whole' that the panelbeating staff were still viewing the CBVE programme as beneficial to the students' interests, particularly in producing higher standards of practical work and in providing greater challenges to both low and high ability students.

Table 3 Student performance in CBVE and the traditional course, as perceived by teachers

Compared with the traditional program, does CBVE allow for	Teachers' perceptions in late 1983				Teachers' perceptions in early 1986			
	Better	Same	Worse	Can't say	Better	Same	Worse	Can't say
1. more productive student learning within a given period	4	1	2	4	3	–	4	3
2. increased time for mastery	9	–	1	1	8	–	1	1
3. production of a generally higher standard of performance in:								
- theoretical material	4	–	2	5	–	2	5	3
- practical work	11	–	–	–	9	–	1	–
4. giving low ability students a better opportunity to learn	9	1	1	–	9	–	1	–
5. giving high ability students a chance to attain excellence	6	1	2	2	9	–	–	1
6. preparing students to move more smoothly from theory to practical work	9	–	1	1	6	–	3	1
7. reducing forgetting	2	–	4	5	–	1	5	4

General management of the CBVE programme and suggested improvements

In addition to reflecting on the impact of CBVE for their own role and for student learning, staff were invited to comment on the overall management of the CBVE programme, and to offer suggestions for improvement. Two thirds of the staff believed that the management of the CBVE programme was satisfactory. One lecturer claimed that: 'the panelbeating staff make it work despite lack of assistance from higher up', while it was the Senior Lecturer's view that: 'early management had some problems, but is running smoothly currently'.

Comments from three staff who believed the situation to be unsatisfactory were the following:

> As long as TAFE considers only the numbers game, (e.g., student hours), CBVE cannot be managed efficiently.
>
> Too many people leaving duties for others to compete.
>
> Duty and preparation time slowly being taken away. Can't manage CBVE programme properly.

There was little agreement among staff as to major improvements which might be made to the management. Suggestions ranged over the following aspects: better staff/student ratio; time for revising and updating materials; changes in enrolment/programming policy; better control of software; more and better teaching aids; more time for CBVE and less on school duties; improved workshop layout appropriate for the CBVE approach; the funds to develop and use computer-assisted learning more effectively. Perhaps the most telling aspect was again the issue of team spirit and staff attitudes, referred to by two lecturers:

> Staff attitudes to change.
>
> A team spirit must be developed which I think is sadly missing in our situation.

Despite these indications of low staff moral with the issue of programme management, it is significant that seven out of nine staff respondents believed that *CBVE programmes should be introduced into other trade areas*, and one of the two lecturers who responded 'no' qualified his answer with the comment 'at least not until other trades are ready for it.' This suggests that he was not averse to the idea of introducing CBVE elsewhere, provided adequate preparation for its implementation had been made. While the reader might be forgiven for thinking that the lecturers, as judged from their comments, were somewhat disenchanted, it is indeed important to remember that the large majority would recommend CBVE for other areas. The conclusion that staff who switch from traditional to competency-based programmes do not wish to return is a recurrent theme in the literature (for example, Smith and Nagel, 1979) and appears to be the case from these results as well.

Finally, the lecturers were asked at the end of their questionnaire the 'rounding-off' question, 'Are there any improvements you would like to see in the course? What are they? It is interesting that so many of these open-ended responses were related to attitudes. Sometimes these comments referred to the administration:

> Full cooperation from management instead of a half-hearted approach.
>
> ... decisions are made on economic value not on educational outcome.
>
> Improved attitude toward course from management down.
>
> Back-up from management.

At other times, they included other actors in the CBVE play, such as staff, students and employers:

> Improved attitudes of employers and students.
>
> Better team management by lecturers. Every lecturer should be involved in the running and improvement of the course.
>
> Some staff need help to motivate themselves; need to work as a team together.
>
> Staff, students, employers (including TAFE) attitudes towards a 'true' understanding of CBVE need to improve ... Staff morale (I think) is at an all time low. Why is it so?

Nearly all of the remaining answers related to facilities and materials in the programme:

> Larger workshops, more area would overcome crowding. More equipment ... more time to develop softwear [sic], computer tests, etc ...
>
> More time for updating, more theory testing, better aids, better software.
>
> A method for controlling the use of equipment.
>
> Student guide books revised more quickly, software improved and more produced, better control of software to avoid losses.

A few inevitable replies and perennial cries completed the list of suggested improvements!

> Less teaching time to allow for the above.
>
> Further funds made available.
>
> More staff required, but this will never eventuate as long as 8,000 student hours are demanded.
>
> More contact staff.
>
> More technical assistant (professional) staff.
>
> More time, time, time!
>
> Resource Room staffed by an extra teacher.
>
> More time provided to improve the course.

These are the sort of demands which educational managers always confront, and any innovation is likely to stimulate.

Summary and conclusion

This paper has reported the reactions of staff members to the implementation of a CBVE programme within a TAFE college. The first major component of this evaluation concerned the impact which CBVE had made on their role as teachers, under three headings; relationships, teaching duties and administration.

Significantly, by early 1986, six of the nine members of teaching staff claimed that they were not personally satisfied with their role and relationships under CBVE. In particular, they seemed to sense a slump in morale, a loss of professional esteem, and a deterioration in their relationships with students in terms of loss of control and influence, and poor discipline. Their response to questions about teaching duties also reflected a somewhat negative experience: teaching load too heavy; inadequate time for preparation; difficulties in supervising so many students at different levels and undertaking various competencies, and lack of time to spend with individual students. Some expressed consternation at the difficulty of knowing everything, all the time, as various students could be working on different parts of the syllabus at the same time. Staff, like students, recognised the problem of inconsistency in marking standards, although they explained the difficulty in adhering to the criteria for mastery, and thereby incurring the displeasure of students who regard the standards as too high and too rigid.

The second major component of the study concerned the perceived impact of CBVE on students. Members of staff on balance seemed to believe that the competency-based approach was better adapted to individual differences, that students had the opportunity to do well, and that they generally had positive attitudes towards CBVE. Two major areas of concern, however, were the failure of CBVE to deal adequately with theoretical (as opposed to practical) topics, and secondly, the apparent extent to which students would forget material once they had finished a particular competency.

Finally, in a third set of questions, staff were asked to reflect on the impact of CBVE on others (such as employers and college administration) and to recommend changes which would improve the operation of the programme.

Many valuable suggestions were made, but an improvement in the level of management support appeared to be one common theme mentioned by several respondents.

It is possible to draw several tentative conclusions from this study. The first is that CBVE should not be hailed as the universal panacea for all educational ills. Despite three years of implementation, the CBVE programme was clearly still not operating flawlessly or solving some of the perennial problems which confront educators. Yet there were evidently some positive outcomes. One of the unique aspects of this study was that it was able, through the eyes of staff, to make many direct comparisons between the CBVE and traditional programmes, and in such comparison, the CBVE programme was judged favourably in most respects and was recommended for introduction into other trade areas. The essential scaffolding of principles and characteristics of CBVE was not the source of any staff disquiet; it tended to be the attitudinal aspects relating to the implementation of the programme that were singled out for attention and improvement. In the light of recent Government pronouncements on, and initiatives in, raising industrial standards, establishing criteria-based rather than time-based training, workforce multiskilling and award restructuring, the voices of the staff in this study are well worth listening to.

A second finding is that CBVE does demand different skills and indeed a different educational orientation from more familiar patterns of teaching and learning. The role transition is not always an easy one to make, and not all teachers will find themselves philosophically or ideologically attuned to any particular educational strategy. It is clear that, like other approaches to education, CBVE appeals to, and suits, some people while leaving others unimpressed. One corollary of this is that those who find themselves unconvinced of its desirability, will be unlikely to be good ambassadors for it—either inside or outside the institution.

The third and final point is that a great deal of wisdom resides in staff members; they, after all, are the ones who daily face the problems of making teaching systems work. As Seidman puts it:

> On a day-to-day basis, community college faculty work with students and interact with colleagues, administrators, and support staff to carry out the mission of the college. Through the countless details of their experiences, the faculty come to understand the central realities of education in their institutions. Because of the fast pace in their colleges, the increasing bureaucratization of their institutions, and the individualistic nature of faculty work, what they know about education in their college is not often fully expressed and is infrequently shared with other colleagues or administrators ... The depth, sophistication, and thoroughness of faculty knowledge is an indisputable but relatively untapped reservoir for those concerned with improving community college education (Seidman, 1985, 81).

It is to be hoped that through the staff members' words reproduced in this paper, we will come to learn more not just about CBVE, important as that is, but about the way teachers think about their jobs, their students and themselves.

References

Andrews, D.H. (1979). PSI in vocational education. Shaping up individualised instruction. *Florida Vocational Journal*, Jan-Feb, 1979, 28-30.

Blank, W.E. (1982), *Handbook for developing competency-based training programmes.* Englewood Cliffs, NJ: Prentice-Hall.

Department of Employment, Education and Training (1989), *Industry Training in Australia: The Need for Change.* Canberra: Australian Government Publishing Service.

Dolac (1988). *A discussion paper on competency-based trade training.* Canberra: Departments of Labour Advisory Committee.

Grant, G., and Associates (1979). *On competence: A critical analysis of competence-based reforms in higher education.* San Francisco, CA: Jossey-Bass.

Hall, V. (1978). National Council for Vocational Qualifications and Further Education. *Coombe Lodge Report*, **20** (5), entire issue.

Harris, R. McL. (1982). Spring or Indian summer: competency-based approaches in Australian post-secondary education. *Australian Journal of Adult Education*, **22** (2), 3-11.

Harris, R. McL., Barnes, G.T., Haines, B.E. and Hobart, R.B. (1985). Competency-based vocational education: An evaluation. *Commissioned Report No. 18.* Adelaide: TAFE National Centre for Research and Development.

Harris, R. McL., Barnes, G.T., Haines, B.E., Hobart, R.B., and Candy, P.C. (1987). Competency-based vocational education: A continuing evaluation. *Commissioned Report No. 45,* Adelaide: TAFE National Centre for Research and Development.

Harris, R. McL., and Schutte, R. (1985). A review of competency-based occupational education. In P. Mountney, and P. Mageean, (eds.), *Issues in TAFE.* Adelaide: TAFE National Centre for Research and Development, 43-65.

Hobart, R.B., and Harris, R. McL. (1980). *Mystery or mastery? An evaluation of PBTE for TAFE teachers in Australia.* Adelaide: Adelaide College of the Arts and Education.

Kentucky Department of Education (1978). *A report on research on competency-based vocational education in Kentucky.* Lexington: Research Coordinating Unit, Bureau of Vocational Education.

Knaak, W.C. (1977). *Competency-based vocational education: A review.* Columbus: The Ohio State University.

Macdonald, C. (1980). *Individualized instruction in vocational education.* Melbourne: Education Department of Victoria.

Macdonald, C. (1984). Self learning. *Occasional Paper No. 6.* Adelaide: TAFE National Centre for Research and Development.

Ohio State University (1986). *Prepare yourself for CBE, Module KI.* Athens, GA: American Association for Vocational Instructional Materials.

Seidman, E. (1985). *In the words of the faculty: Perspectives on improving teaching and educational quality in community colleges.* San Francisco, CA: Jossey-Bass.

Smith, H.R. and Nagel, T.S. (1979). From traditional to CBTE—and never back again. *Phi Delta Kappan*, **61**(3), 194-5.

Thompson, J. (1985). *Individualised systems of instruction in TAFE colleges.* Adelaide: TAFE National Centre for Research and Development.

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COMPETENCY-BASED VOCATIONAL EDUCATION: IMPLICATIONS FOR TEACHERS AND TEACHER EDUCATION

TONY WATSON

T. Watson, 'Competency-based vocational education: Implications for teachers and teacher education', *TAFE Journal of Research and Development*, vol.7, no.1, 1991, pp.1–19.

Recent calls for reform of vocational education and training arrangements in Australia have drawn attention to so called competency-based vocational education (CBVE) and self-paced methods of training. Teachers in technical and further education therefore, as well as trainers in industry, need to know more about these methods and how they operate. The paper outlines the main features of CBVE and reviews and compares three competency-based programs in operation. The programs are offered by vocational colleges in Canada, the United States of America and Australia and the review identifies the processes and products required to implement the competency-based approach successfully. The review makes it apparent that CBVE has a good deal of potential for training in vocational education as well as in industry. The self-pacing aspects appear to develop characteristics of independence and self-reliance. The review also makes it apparent that there are inherent problems and potential pitfalls associated with the approach. These lead to a number of implications for the initial preparation and ongoing staff development of teachers.

Introduction

In recent years, there have been repeated calls from government, unions and employer groups in Australia for reform of our vocational education arrangements and methods of skills training (Dawkins 1989, p.iii). These pressures have been made more immediate and urgent by the need to underpin the ambitious program of award restructuring already under way. The importance of developing a more highly skilled and adaptable workforce is now widely recognized

Furthermore, these calls for reform have often been expressed in terms which are somewhat new or unfamiliar. There have been many references to so called competency-based instruction and more flexible, self-paced methods of training.

The working party established in 1987 by the Departments of Labour Advisory Committee (DOLAC) to examine competency-based approaches to training for the trades called for the adoption of 'competency-based instruction and assessment in all basic trade courses including the incorporation of a broad-based modular curriculum and self-paced instruction where appropriate' (DOLAC 1988, p.19).

In his paper entitled: *Improving Australia's training system,* John Dawkins argues that the award restructuring process currently in train, requires that training systems should provide, amongst other things:

- an increased emphasis on demonstrated competence rather than time served; and
- more flexible, broadly-based and modular approaches to training.

(Dawkins 1989, p.iii)

Taking up the discussion paper prepared by DOLAC, the Special Ministers Conference on Training in April 1989 requested the Commonwealth State Training Advisory Committee (COSTAC) to develop a strategy for the implementation of 'a competency-based training system not only in the trades areas but also to encompass all occupations covered by awards or industrial agreements' (Murphy 1990, p.11).

This strategy is to be based on three main elements:

(i) national standards;
(ii) integrated and flexible methods of delivery (particularly in formal off-the-job training where TAFE is expected to be the major provider);
(iii) competency testing of knowledge, skills and application.

(Murphy 1990, p.13-26)

At the state level, the Management Review of the NSW Education Portfolio, in its report *TAFE restructuring*, has called for an improved response from TAFE to the 'fast changing industrial training and competency needs ... through more flexible access to course modules, self-paced learning and industry-located courses' September 1989, p.8).

All of this represents a considerable challenge to teachers in TAFE as well as trainers in industry charged with the responsibility of implementing these innovations. There will be challenges also for secondary teachers as vocational education takes on a more significant role in the secondary curriculum. In order to implement the changes successfully, teachers and others responsible for vocational education and training need to know more about the nature and essential characteristics of competency-based instruction and its links with self-paced learning. They also need to understand the procedures, facilities and resources required for this approach to be effective. Awareness of the associated problems and potential pitfalls and problems is also desirable.

Teacher educators moreover need to adopt methods which will more adequately prepare teachers and trainers to develop and work with competency-based and self-paced programs.

The objective of this paper then is to clarify the main features and proposed advantages of competency-based instruction and to extend our understanding of this form of training by an examination of competency-based programs in operation. The link with self-paced learning will be highlighted. Implications will be drawn for teachers and trainers as well as for teacher educators.

What is competency-based vocational education?

Competency-based vocational education (CBVE) is similar to performance-based teacher education which is reasonably well known. As with this approach to teacher education, CBVE requires that the knowledge, skills and attitudes (competencies) to be taught in a vocational program are those required by workers to perform successfully in the related job or occupation This usually involves a series of learning experiences that include background information, practice and performance of the required skills in an actual or simulated work setting.

The basic characterisitcs of CBVE have been defined as follows:

- Role-relevant competencies that include standards are identified and stated.
- Competencies are specified to students prior to instruction.
- Criterion-referenced measures are used to measure the achievement of competencies.
- A system exists for documenting the competencies achieved by each student.

(Horne 1982, p.3-4)

In addition, in order to achieve maximum flexibility, CBVE usually incorporates some form of *individualised* or *self-paced learning*.

The following characterisitcs are seen as desirable:

- Individualised materials and methods are used in instruction.
- Learning time is flexible.
- Learning is guided by feedback.

(Horne 1982, p.5-6)

One of the questions which often arises about competency-based learning is 'what is a competency?' Hermann, in his account of competency-based vocational education, defines competency as 'a performance capability needed by workers in a specified occupational area' (1990, p.46). For example, the community expects automotive mechanics to competently repair brakes and engineers to design safe bridges. Hermann also points out that competencies may be *cognitive*, *attitudinal* and/or *psychomotor* and makes the important distinction that a competency does not imply perfection: 'it implies performance at a stated level or criterion [which] needs to be specific for each occupational area' (1990, p.46).

Taking a similar line, Gonczi, Hager and Oliver maintain that competence derives from the possession of relevant attributes such as knowledge, abilities, skills and attitudes, which are often referred to as competencies.

> so a *competency* is a combination of attributes underlying some aspect of successful professional performance.
>
> (Gonczi, Hager and Oliver 1990, p.91).

Foyster maintains that a useful statement about the nature of competence must provide evidence about three elements:

- details of the range of skills performed within the competence (including routine and non-routine skills);
- the standards of that performance;

- the conditions under which performance is required.

(Foyster 1990, p.8)

One of the most debated aspects of competency-based vocational education concerns the link with and need for self-paced learning. In the opinion of this author, CBVE will only contribute towards the objective of establishing a training system based on competence achieved rather than on time served if it is based in turn on some system of self-paced learning. That is, competency-based approaches, to be fully effective, should allow learners to acquire the competencies more or less at their own pace through the use of a variety of self-paced learning strategies and materials and with frequent feedback.

Other authors support this view. 'The most common aspect of individualisation in CBVE programs,' writes Hermann 'is self-pacing [which is] characterised by allowance being made for students to move through a course at different rates' (1990, p.53-54). And Murphy maintains that it is generally accepted that the full potential of a competency-based system will only be realised through innovative teaching strategies such as flexible sequencing and self-paced and individualised learning 'tailored to the needs of both individuals and industry (1990 p.21).

CBVE of course is not new. It is very much a reality in the United States of America and Canada, and has been since the early 1970s. In these countries many secondary and post-secondary institutions have developed CBVE programs. Some states have policies requiring the adoption of CBVE curricula in state-aided institutions and many state authorities see CBVE as the primary means of providing more effective vocational education and training for youths and adults alike.

Courses offered by the CBVE mode range from standard two year technician level associate degree and trade level courses to short entry level skills training courses. They also include academic upgrading and basic adult education courses. Students in the courses include school leavers seeking vocational qualfications, young unemployed adults seeking job skills as well as older students seeking updating and retraining.

The courses are generally taught wholly or partly through the use of flexible self-paced methods and materials.

The rationale for competency-based learning includes claims that it is more cost-effective, more relevant, more flexible and more self-satisfying than traditional forms of vocational education. It is argued that, because competency-based programs are so closely based on specific job requirements, students are taught the relevant and current skills required for employment. This aspect is enhanced when local industry, commerce and advisory bodies are involved in the development of curricula.

In addition, it is claimed that the self-paced learning and individualised methods associated with most CBVE programs tend to develop habits of self-reliance and independence so beneficial in gaining and holding employment. These methods also appear more suitable for adults who bring to the courses widely divergent ability levels and anxieties about learning in traditional class groups. The self-pacing aspect, moreover, allows open-entry. open-exit policies to be adopted by most institutions which in turn allows adults to adjust course requirements to fit their other commitments and allows graduates to move onto the job market at various times throughout the year.

There are, of course, some examples of CBVE in Australia. Perhaps the most well known are the programs offered by the Richmond College of TAFE in

Victoria. This college offers a wide range of automotive trade-related courses as well as community courses which are all competency-based and all taught via the self-paced mode. They have developed a variety of self-paced formats including computer-based learning and employ an effective computer-based student management and reporting system. Croydon Park College in South Australia has introduced CBVE in panelbeating on a somewhat smaller scale. Reviews of these and other programs have been provided by Pearson (1983), McDonald (1984), Harris et al. (1985, 198), and Hermann (1990).

However, competency-based and self-paced learning have not really taken the Australian educational world by storm. Some States have appeared very reluctant to adopt these approaches in vocational education. This has been particularly true of New South Wales, where the recent report on TAFE restructuring observed that 'TAFE (in NSW) has not addressed self-paced learning modes in any comprehensive manner' (1989, p.27).

Following a recent survey of competency-based courses and programs currently being conducted by TAFE in Australia, Thomson reported that:

- nationally, around 13% of TAFE courses (other than enrichment courses) have some competency-based elements; and
- of these, only one third possess genuine self-paced learning attributes.

(1990, p.57 & 63).

This may of course be due to the fact that many teachers and others responsible for training are genuinely unconvinced about the values and merits of competency-based education. Research findings after all have so far been rather unconvincing (Harris *et al.* 1985, 1987). It may also be due, in part, to the fact that teachers, trainers and administrators, as well as teacher educators, are somewhat uncertain about the procedures and materials required to make such a system effective.

In the survey reported above, Thomson also found that 'only 15% of TAFE instructors have received any training in CBT and that 'there is no general agreement among members of the TAFE community about what is meant by competency-based training' (1990, p.66).

Consequently an examination of CBVE programs in operation may serve to clarify our thinking concerning what is involved in competency-based instruction as well as the advantages and disadvantages of such a system. More importantly, perhaps, it should also help us to identify the knowledge, skills and attitudes, in short the competencies, required by teachers to implement CBVE effectively.

CBVE in operation

The main features of competency-based instruction may be illustrated by an examination of three CBVE programs in operation. The programs are offered by the following colleges:

- Holland College, Charlottetown, PEI, Canada;
- Northeast Metro Technical College, White Bear Lake, MN, USA;
- Richmond College of TAFE, Victoria, Australia.

These programs are typical of college-based CBVE programs. They are all well regarded, with long standing reputations and have been in operation since the early 1970s. The comments made here are based on visits to the colleges, interviews with students and staff, and examination of materials and unpublished papers during 1988 and 1989.

Holland College was established in 1969 by the Province of Prince Edward Island with a clear mandate to provide Islanders with alternative programs at the post-secondary level. The primary mission of the College has been 'to provide a broad range of educational opportunity in the fields of Applied Arts and Technology, Vocational Training and Adult Education' (Holland College Act, 1974).

From the outset the faculty adopted certain principles of teaching and learning which were to lead them to adopt a competency-based approach. The system is called *STEP* (Self-Training and Evaluation Process) and its objective 'is to help learners assume responsibility for their own development while acquiring the skills needed to enter wage-earning employment' (Holland College 1983, p. 1).

Northeast Metro Technical College was also established in 1969 to serve the vocational education needs of nine school districts to the north of St Paul in Minnesota. Courses began in 1971 under the name 916 Area Vocational Institute by which name the College became well known in the USA as a provider of quality competency-based and self-paced vocational programs. The name was changed to the present one in 1989. From the beginning this college adopted a competency-based approach now called *Personalised Competency-Based Instruction*. Like the STEP system at Holland College the objective of the personalised system at Northeast Metro is to enable students to acquire relevant vocational skills while moving at a pace which suits them.

Richmond College of TAFE in Victoria has become well known for its pioneering work in competency-based education and self-paced learning. The system of training in this college is based on individualised self-paced methods, mastery learning, combined with criterion assessment. Beginning in a modest way in 1975 with the Panelbeating Trade Course, the College now offers a wide range of apprenticeship, post-apprenticeship and community courses by the self-paced mode.

At all three colleges the CBVE system is based on four major features or elements.

Occupational analysis

Each program is based on a careful analysis of the appropriate career or occupation. Program designers are required to carry out an extensive consultation process to identify the skills or competencies required by particular occupations in given industries. These then constitute the main elements of each occupational program or course of study.

The procedure followed at Holland College is typical. There the occupational analysis is usually carried out by conducting a 2-3 day workshop using a process such as DACUM (Developing a Curriculum). The outcome is a career profile which sets out major areas of competence within a field and specific tasks or competencies required by each of these areas arranged in a sequence (see Figure 1). Each profile is accompanied by a rating scale which sets out performance criteria for each skill (see Figure 2). These competencies then become the basis of each occupational program.

Figure 1 Extract from profile for business administration

COMPETENCY AREAS	TASKS OR COMPETENCIES		
A MANAGEMENT & GOVERNMENT REQUIREMENTS	A 1 IDENTIFY FORMS OF BUSINESS ORGANISATION	A 2 INTERPRET COMPANIES ACT	A 3 IDENTIFY CLASSES
B OPERATE ACCOUNTING SYSTEMS	B 1 USE SHORT METHODS TO MAKE RAPID CALCULATIONS	B 2 IDENTIFY & CHECK SOURCE DOCUMENTS	B 3 RECORD BASIC ACCOUNTING ENTRIES
C MANAGE FINANCE RESOURCES	C 1 ESTABLISH CREDIT PROCEDURES & LIMITS	C 2 ENFORCE COLLECTION PROCEDURES	C 3 ANALYSE BENEFITS OF SHORT MEDIUM & LONG-TERM FINANCING

Figure 2 Rating scale

4	C	CAN PERFORM THIS SKILL SATISFACTORILY AND CAN LEAD OTHERS IN PERFORMING IT
	B	CAN PERFORM THIS SKILL SATISFACTORILY WITH INITIATIVE AND ADAPTABILITY TO SPECIAL PROBLEM SITUATIONS
	A	CAN PERFORM THIS SKILL SATISFACTORILY WITH MORE THAN ACCEPTABLE SPEED AND QUALITY
3		CAN PERFORM THIS SKILL SATISFACTORILY WITHOUT ASSISTANCE AND/OR SUPERVISION
2		CAN PERFORM THIS SKILL SATISFACTORILY BUT REQUIRES PERIODIC ASSISTANCE AND/OR SUPERVISION
1		CAN PERFORM SOME PARTS OF THIS SKILL SATISFACTORILY BUT REQUIRES ASSISTANCE AND/OR SUPERVISION TO PERFORM THE ENTIRE SKILL

(Source: Holland College 1983)

The syllabus is often written up in terms of performance objectives in which there are three elements:

- the task to be performed;
- the conditions under which the performance will be measured;
- the level of competency to be achieved, i.e. the criterion standard.

Learning guides

Once the competencies or tasks have been identified and organised, they are translated into student learning activities. These are the activities which students must engage in to acquire the skills, knowledge and attitudes to achieve competence in each task. They are usually brought together in booklets called learning guides or in learning packages. These learning guides, or packages, comprise the major source of instruction—the basic set of directions, activities and materials to complete each task.

While learning guides vary a little from college to college, those used at Northeast Metro are fairly typical. They contain the following elements:

- a rationale statement;
- a terminal objective (called TPO);
- enabling objectives (called micro performance objectives, or MPOs);
- learning steps or directions (one for each MPO);
- lists of resources for each step;
- criterion exams and product/performance checklists.

Resources

Because of the independent learning required by CBVE programs, great reliance is placed on ample learning resources. Resources are developed for each competency and sometimes for each step or enabling objective in the competency. They are sometimes contained within the learning guide or package and may be kept in special resource rooms and centres. In this case they would be referred to in the appropriate learning guides. Resources may take the form of written materials, flip charts, self-paced learning packages and audio-visual media such as tapes, slides videos and films.

At Northeast Metro the learning resources generally require students to read something (text or information sheet), view something (video cassette or flip chart), and do something (activity sheet). These are often contained within the learning guide or package.

Richmond College makes great use of self-paced learning packages. These units are designed in a variety of media such as slide/tape, flip card, computer-based learning program, printed text or video, so that learners can select the format which best suits their individual learning styles. The self-paced learning units are designed to ensure that learners are actively involved with the instructional materials and are given feedback on the adequacy of their responses. Good use is made of mini-tests and self-checks to test the understanding of theoretical material. The packages are generally kept in resource or facility rooms adjacent to the practical areas.

The learning system

All three colleges employ a learning system or model which is based on individualised and self-paced learning.

At Holland College, following an interview and orientation program, each student is given a copy of the appropriate occupational analysis in chart form. In consultation with an instructor-adviser, the student then plans a career program (which may include all or some of the competencies in the total career profile). Once this is established, learning plans or plans of action (similar to learning contracts) are then worked out (see Figure 3).

Figure 3 Learning plan

LEARNING PLAN

No: .... For: ....

OBJECTIVE ....

....

....

SKILLS TO BE DEVELOPED

....

....

Proposed Start Date: ....

Proposed Completion Date: .... Date Rated: ....

Signed by: ....

Learner Instructor

(Source: Holland College 1983)

Students then work through their learning plans at their own pace following learning activities and using resources set out in the learning guides. They work in realistic work stations or practical rooms (e.g. a model office for Secretarial Arts) or in the appropriate resource rooms. During this stage they are supervised and perhaps interviewed by instructors and are free to seek assistance from any source.

When students feel confident that they can perform the performance assessment task set out in the learning guide, they rate themselves and then have this reviewed by the instructor. When the student and instructor agree on a rating, it is entered on the student's record chart or profile of achievement.

Students enter and exit from the program at any time (upon full or partial completion of the program) and receive on exit a 'Record of Achievement'.

Northeast Metro employs a very similar system to the one at Holland. As at Holland, students work at their own pace in practical rooms or work stations, or in the resource centres moving freely from place to place and seeking assistance as required. The criterion exam is a written theory exam conducted in the LRC. The product/performance checklists provide the basis of performance assessment for each task. Instructors are responsible for all testing and recording.

It is worth noting that both Holland and Northeast Metro Colleges have developed competency-based and individualised systems of teacher training for the staff development of their teachers. These are made up of sets of self-paced, self-instructional booklets especially designed to train new teachers to work with, and develop the competency-based learning materials used at each college. Teachers are expected to work through these in their own time and at their own pace.

At Richmond College students also progress through their courses at their own pace working either in the resource rooms on the self-paced learning packages, or in the practical rooms on practical tasks. On the completion of each self-paced learning unit or practical task, students are assessed to determine whether they have achieved the criterion standard stated in the objective. If the standard has been reached, they receive a pass and proceed to the next objective. If the standard has not been achieved, the student is able to undertake a different learning sequence and again take the criterion test.

It was reported that the majority of students complete their training in this self-paced learning system to the necessary standard in approximately two thirds of the time taken in the traditional system with its group-based instruction. However some students require significantly longer than the prescribed time. Students who complete their courses in below average time may return to their jobs or begin advanced or other related courses.

All three colleges have been able to introduce flexible attendance patterns and a rolling enrolment system with new enrolees filling vacancies as soon as other students leave or complete courses.

Observations

As observed by this author, the system in all three colleges appeared to be working well in most respects. Students observed in the three colleges seemed to be working busily and independently while assuming responsibility for their own learning. Students interviewed reported that they enjoyed the self-paced methods and could answer questions readily about 'what they were doing now', 'why they were undertaking particular tasks' and 'what they intended to do next'. Most staff interviewed reported that they also enjoyed the system and that the job placement rate for students was high. In other words, the system appeared to be achieving its objective of helping students to assume responsibility for their own development while acquiring the skills needed to enter employment.

Certain problems and difficulties however were noted. It was reported at Holland, that while many students adapt successfully to the system, some do not. The critical element for success appears to be the realisation by students that progress only occurs when *they* do something—that freedom brings an equal amount of responsibility. Those who adapt tend to proceed quite quickly, those who do not, tend to fall behind.

One fundamental problem with most CBVE systems observed concerns the way in which the competencies are conceived and the occupations analysed. Gonczi, Hager and Oliver point out that because the focus is generally on the behavioural aspects of job performance rather than the wider or higher level attributes, tasks tend to be described interchangeably as 'competencies' or skills and this leads to a competency check list which can become unwieldy and impractical (1990, p.11). Furthermore, these authors question the validity of an approach which appears to ignore or take for granted the higher level attributes, claiming that 'competence in an occupation appears to require more than mastery of a large number of discrete skills'. (Gonczi, Hager and Oliver 1990, p.11).

Another problem concerns the quality of the learning materials employed. Most programs observed support their self-paced methods with more and more segments of traditional group teaching. In some cases these segments are continued for several weeks at the beginning of a course before the self-paced materials are used. In other cases, particularly in manual trades areas, they are interspersed throughout the course, often to teach the manual skills.

This is clearly related to the lack of quality control over the learning packages. Curriculum consultants admit that sometimes when developing the packages they are forced to concentrate on aspects such as the appropriateness of objectives and the match between objectives and assessment. They often do not have time to check the quality of the bulk of the learning package, including the self-paced learning techniques employed. This means that there is no real guarantee that the learning resources (printed or audio-visual) do in fact teach the current and often modified objectives. This problem has been exaggerated by the recently recognised need to rewrite learning guides to incorporate cognitive, affective and psychomotor outcomes.

In addition, there appears to be an over-reliance on very long information sheets (3-5 pages sometimes) and long video cassettes. There is insufficient use of basic self-paced learning principles such as the incorporation into the package of small chunks of information or activity accompanied by frequent feedback and self checks.

In order to overcome some of these problems, Northeast Metro has made an effort recently to improve the quality of their learning packages. In the first place, learning packages are more detailed. Terminal objectives are expressed in detail setting out conditions and standards. Theory test and performance test requirements are clear. Enabling objectives and related learning steps are set out in full with resources detailed for each one.

In addition, efforts are being made to reorganise the formats of the learning guides to make them easier to follow, especially for poor readers and students with learning disabilities. It was recognised also that the learning guides would have to be rewritten to incorporate more clearly, cognitive and affective as well as performance outcomes.

Richmond College has overcome these problems to some extent by means of the implementation of a computerised student management and reporting system and by the introduction of some computer-based learning materials. The student management and reporting system (SMRS) supports up to 1,000 students and a maximum of 468 objectives. It has been designed to assist instructors to manage individuals or groups of students through a course. The system allows students to record the start and finish of modules while displaying a representation of their progress through the course. It makes extensive use of colour and the 'point at and choose method' of interacting with users.

The computer-based learning materials incorporate features which allow:

- the writing, storing, retrieving and amending of lessons;
- the creation of graphics and diagrams;
- the use of colour text screens with highlighting of text;
- the testing of lessons and recording of results.

In the opinion of this author the adoption of some form of computer-based and computer-managed learning system is probably now essential for the implementation and continued development of training systems involving competency-based and self-paced learning.

Another impressive feature of the system at Richmond, is the careful approach to testing. Testing is based on mastery learning and the standards specified in advance are high. On completion of the related instruction or theory module by chosen media, students attempt a theory test which is computer-managed. If successful, they report to an instructor to attempt the performance test. If the specified standard is achieved a *pass* is recorded. If not, students try again later after relearning. The system acknowledges no failures—only incomplete work and no provision exists for 50 percent pass marks. In addition, if students believe that they are competent in a particular skill they can elect to do the performance test without working through the related instruction.

One further worrying aspect of the competency-based approach is the impression that some employer groups find the concept difficult to appreciate and accept. Furthermore, some instructors are not entirely happy and confident working with independent and self-paced learning. The environment of such a system does indeed change the traditional role of the teacher. Instead of being a presenter of knowledge with a captive group of students regarded as 'theirs', teachers have to become facilitators able to individualise their instruction and deal with a variety of students all at different stages on a one-to-one basis. Some instructors find it difficult to individualise instruction and make individual decisions about each student. In addition, traditional course development and administration duties change considerably. All of this can cause some teachers to feel stressed, insecure, frustrated and threatened. Tension within the staff resulting from these concerns has been reported as one of the 'growing pains' of the system developed at Richmond (Bird 1982, p.20). It is not absolutely clear that the pain has entirely disappeared.

Implications and conclusions

This review of competency-based vocational programs in operation makes it apparent that competency-based instruction has a good deal of potential for training in both industry and TAFE in a variety of occupational areas. The CBVE approach appears especially useful in training situations where trainees have to attain a small number of specific, and job-related competencies. The approach is doubly useful where trainees' ability and experience are widely divergent. The self-pacing aspect, moreover. appears to allow opportunities to develop characteristics of independence and self-reliance which trainees generally enjoy and allows the introduction of flexible attendance and enrolment patterns which employers and mature students appreciate.

It is also apparent, however, that the CBVE approach has a number of inherent problems and potential pitfalls and the indications are that it will only fulfil its potential in training and vocational education if it is carefully and effectively implemented. A number of implications can therefore be drawn for TAFE and other training institutions thinking of implementing such a system. One of these concerns is the need for effective initial and ongoing teacher education.

In relation to initial teacher preparation, it is clear that if teachers are to work successfully in a CBVE program they will need a thorough course in the principles which underlie CBVE as well as a good understanding of the procedures necessary for its effective implementation. This would include an understanding of occupational analysis procedures such as DACUM, so that teachers are able to identify the relevant competencies in a range of occupational areas. In other words, teachers will need to learn how to consult extensively with industry in order to identify the skills relevant for particular occupations or positions and to organise these skills 'into appropriate groups from which learning activities can be developed' (Foyster 1990, p.2).

Furthermore, because of the nature of most CBVE programs, teachers who can develop adequate resources and learning materials require training. Given the central position allotted to these materials in CBVE, teachers must learn how to produce written materials which are clear and comprehensible for the majority of readers, and audio-visual materials which are properly co-ordinated and related to the written materials. In addition, the learning materials should incorporate the well established principles of self-paced learning, such as:

- the need for small steps;
- the need to match learning activities and objectives;
- the need for continuous student response;
- the need for immediate and regular feedback.

It has been noted that failure to observe all of these principles has led to some breaking down of the system in some CBVE programs. In addition, Harris et al. in their review of a CBVE program in South Australia from 1983 to 1985, noted that student complaints about learning materials and audio-visual resources had become common by 1985 (1987, ch.4). These authors concluded that for the system to improve, learning materials and especially audio-visual materials would need to be 'polished and more adequately coordinated to ensure clarity, and increase student interest and challenge' (1987, p.124). Flowers, in a similar review of competency-based vocational programs in North Carolina, observed that several of the key elements which characterise competency-based education received only minimal implementation. One of these was self-paced instruction. He concluded that for competency-based programs to receive a higher level of implementation, future curriculum development efforts should concentrate on the development of more effective 'pre-assessment instruments and individualised learning activity packages' (Flowers 1989, p.64). These are observations which should be kept in mind by any institution intending to introduce CBVE programs and by any institution preparing teachers to work in them.

In addition, successful introduction and implementation of a CBVE program requires, on the part of teachers, a real commitment to the values and worth of the competency-based approach. This objective might be achieved in part by having teachers develop competence in the development of CBVE programs and materials. It might also be achieved through the use of videos and films showing CBVE in action. It might be more effectively achieved, however, by ensuring that the teacher education programs themselves, or parts thereof, are taught using the competency-based mode. Performance-based teacher education modules have been developed by the National Center for Research in Vocational Education in Columbus, Ohio, (1982) and these are quite well known. It has also been noted that some community colleges with CBVE programs, such as Holland College in Canada and Northeast Metro Technical College in Minnesota, have developed their own in-house performance-based teacher education programs.

However these approaches to performance-based teacher education often fall into the same trap already referred to: that is, they tend to be based on long lists of performance skills or competencies and ignore the fact that professional competence is based not so much on the mastery of a set of discrete skills, but more on critical attributes such as judgement as to how and when to use these skills. Consequently, Gonczi, Hager and Oliver warn that any attempt to introduce competency or performance-based methods in professions such as teaching should focus on the more general attributes of the practitioner that are crucial for effective performance (knowledge, abilities, skills and attitudes). These should be integrated within the context of realistic professional situations.

(1990, p.21-25). In other words teachers are required who are capable of independent and critical thinking and are 'open-minded, self reliant, innovative and reflective'. (National review of TAFE teacher preparation and development 1991, p.50.)

A further implication of proposed CBVE implementation is the need for adequate preparation and on-going staff development for existing teachers. The difficulties and frustrations which some teachers experience working with CBVE have been noted elsewhere. In relation to the 'growing pains' experienced by some teachers, Bird reports that at Richmond College of TAFE, when the system was introduced, some teachers experienced feelings of insecurity because they felt that their roles were jeopardised by the new system and they did not have the capacity to examine the system objectively (1982, p.20). Harris *et al.* observed that by early 1986 many teachers working in the South Australian program reported that they were not personally satisfied teaching CBVE (1987, p.79). They reported feelings of 'powerlessness', 'frustration' and 'dissatisfaction' (1987, p.79-81). Foyster makes the point that those preparing to teach in a competency-based program will need to 'prepare themselves for teaching in a style differing significantly from the traditional approach' and that they will also have to prepare the learners 'who will probably be expecting the traditional approach to teaching/learning' (Foyster 1990, p.2).

In this regard, Harris *et al.* also noted that while student satisfaction with most aspects of the program remained high, the most frequent complaints from students concerned the availability of staff for guidance and testing and inconsistency in marking. (1987, ch.4). Clearly some investment in computer-managed learning (including testing and recording) would tend to alleviate some of these problems. Nevertheless these authors concluded that 'continuing staff development and team building activities be undertaken wlth both teaching staff and administrators to improve morale and motivation'. (1987, p.l24).

Perhaps the most telling point concerning CBVE can be drawn from a conclusion already drawn about performance-based teacher education. Phyllis Caldwell, following a review of competency-based teacher education programs for adult educators, concluded that while 'it is relatively easy to develop lists of competencies, [it is] very time consuming and expensive to develop the training and evaluation packages based on these competencies' (Grabowski et al. 1981, p.7). This conclusion is just as valid and just as significant for the preparation of teachers as it is for the preparation of the CBVE programs themselves.

References

Bird, M. (1982). The quiet revolution: self-paced apprentice training. *Training and Development in Australia*, 9(2).

Blank, W.E. (1982). *Handbook for developing competency-based training programs.* Englewood Cliffs, NJ: Prentice-Hall.

Dawkins, J.S. (1989). *Improving Australia's training system.* Canberra: AGPS.

DOLAC Working Party on Competency-Based Trade Training. (1988). Report. Canberra: AGPS.

Field, L. (1990). *Skilling Australia.* Melbourne: Longman Cheshire.

Flowers, J. (1989). Implementation of competency-based education in North Carolina's high school vocational education programs. *The Journal of Vocational Education Research*, 14 (3), 53–67.

Foyster, J. (1990). *Getting to grips with competency-based training and assessment.* Leabrook, SA: TAFE National Centre for Research & Development.

Gonczi, A., Hager, P., & Oliver, L. (1990). *Establishing competency-based standards in the professions.* National Office of Overseas Skills Recognition—Research Paper No. 1. Canberra: AGPS.

Grabowski, S.M., et al. (1981). *Preparing educators of adults.* San Fransisco: Jossey-Bass.

Harris, R., Barnes, G., Haines, B., & Hobart, B. (1985). *Competency-based vocational education: an evaluation.* Payneham, SA: TAFE National Centre for Research and Development.

Harris, R., Barnes, G., Haines, B., Hobart, B., Candy, P. (1987). *Competency-based vocational education: a continuing evaluation.* Payneham, SA: TAFE National Centre for Research and Development.

Hermann, G. (1990). *Developing occupational courses.* Sydney, Macquarie University, Centre for Research in Education and Work.

Holland College. (1983). Booklet. Charlotte Town, PEI.

Horne, R. (1982). *Guide for implementing competency-based education in vocational programs.* Glenn Allen, Virginia: Vocational Curriculum Center.

In STEP: an approach to performance-based learning at Holland College (1983). Holland College, 3rd ed.

Kasworm, Carol. (1980). *Competency-based adult education: a challenge for the 80s.* ERIC Clearinghouse for Adult, Career and Vocational Education, The Center for Research in Vocational Education, Columbus, Ohio.

Knaak, W. E. *(1977). Competency-based vocational education: a review.* ERIC Clearinghouse on Career Education, The Centre for Vocational Education, Columbus, Ohio.

MacDonald, C. (1984). *Self-learning.* Payneham, SA: TAFE National Centre for Research and Development.

Murphy, M.J. (1990). Competency-based training: COSTAC working party report. Paper presented to National Conference: *Assessment and Standards in Vocational Education and Training,* TAFE National Centre for Research and Development, Adelaide, October, 1990.

National Center for Research in Vocational Education. (1982). *Performance-based teacher education modules, category K, implementing competency-based education (CBE) K1 to K6.* Columbus, Ohio.

National review of TAFE teacher preparation and development. (1991). Adelaide: TAFE National Centre for Research and Development.

Pearson, M. (1983). Approaches to individualising instruction: a review. *Higher Education Research and Development,* 2, 155-181.

Pucell, D. J. (1989). *Performance-based instructional design.* New York: McGraw Hill.

Pucell, D.J. (1989). *Performance-based instructional design: CAI program.* IBM Version, Performance Training Systems Inc., St. Paul, MN.

TAFE restructuring (September 1989). Management Review: NSW Education Portfolio, Milsons Point, NSW.

Thomson, Peter. (1990). Competency-based approaches to training in TAFE. Paper presented to National Conference: *Assessment and Standards in Vocational Education and Training,* TAFE National Centre for Research and Development, Adelaide, October, 1990.

Wickerton, A. (1990). A whole college approach to competency-based self-paced delivery, Paper presented to National Conference: *Assessment and Standards in Vocational Education and Training*, TAFE National Centre for Research and Development, Adelaide, October, 1990.

32

HOW CLEVER ARE WE ... IN THE WAY WE TRAIN OUR WORKERS?: THE GREAT AUSTRALIAN COMPETENCE CAPER

GEOFF SCOTT

G. Scott, 'How clever are we ... in the way we train our workers?: The great Australian competence caper', *Training and Development in Australia*, vol.18, no.2, 1991, pp.7–12.

Background

With the introduction of the Training Guarantee Legislation and recent initiatives in workplace reorganisation and Award Restructuring, worker education in Australia is receiving unprecedented interest.

In an earlier article (Scott, 1990a), I argued that, despite the dramatic increase in the number and variety of training programs and providers in recent years, the sorts of outcomes such programs should be aiming to achieve remained unclear. In particular, I asserted that a key outcome, improvement in worker competence, was typically defined in a very limited and unhelpful way. I noted that a common tendency was to see competence as only entailing the application of the particular skills necessary to perform a series of set tasks to a set standard.

I went on to emphasise that a more useful definition of 'competence' must incorporate far more than easily observed 'performance skills'. It should also give attention to the type of stance (attitude towards life and work) and way of thinking which would best equip the worker to decide when (and when not) to appropriately use or update these skills. In other words, I asserted that 'competence' must be seen to involve far more than the routine application of set skills to set tasks in set sequences to a set standard.

This article builds on these points. In particular, I seek to make some connections between how we define competence, the government's call for the development of clever workers and our approaches to educating and assessing these people.

What does competence entail?

A practical way to tackle this question is to consider how we might distinguish a 'competent' motor mechanic from an 'incompetent' one.

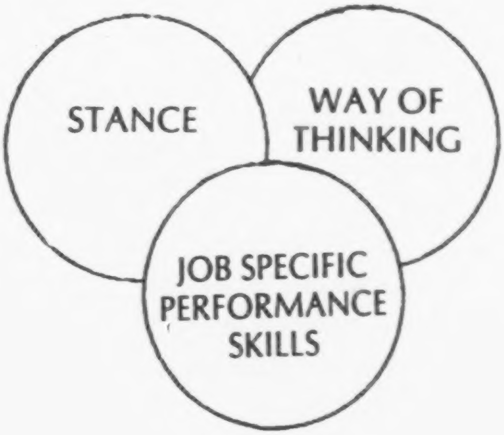
If I notice that my car has developed a mysterious knock under the bonnet and I take it to be 'fixed' by a mechanic what do I expect? I expect to have the problem rectified as quickly, efficiently, permanently and cheaply as possible. What I don't want is a technically capable mechanic to start at the top of the engine and skilfully dismantle and replace every component of it randomly until the problem goes away. This is excessively costly, inefficient and, for me, time consuming. The person 's performance, although it might have been technically fine (that is each skill was appropriately performed to a set standard), was clearly not what we would call competent.

A competent auto mechanic, doesn't operate randomly. S/he takes time to *think through* what the problem might be. S/he asks me what happens, s/he stops and thinks, tries to scan past memory for similar (but never identical) cases and comes up with an informed diagnosis which seems to fit the unique facts of my situation. This process of problem construction (as distinct from problem solving) involves a creative process of 'reading' meaning into the unique combination of facts that make up my case. Once s/he has made sense of what the problem is, s/he is able to 'match' a plan of action likely to rectify the problem(s) identified. Only when this sort of detective work has been done do I then expect that the mechanic can deftly use an appropriate selection of his/her *performance skills* to dismantle the offending section of the engine and fix the problem.

To think in this creative and 'contingent' way and be comfortable with the unpredictable aspects of daily work my competent mechanic also requires a certain sort of *stance* (attitude to me as customer and to the unpredictable and unexpected nature of daily practice). I expect a willingness to listen to me and a desire to communicate effectively. I want someone who relates well with fellow workers, in order to secure their cooperation and support when it is needed. I expect my mechanic to persevere if the first diagnosis proves incorrect and not to be 'thrown' when things go awry. I also want someone who enjoys the challenge of the unexpected, who is not disturbed if my unique case doesn't fit standard formulas. I would also hope that my mechanic is willing to learn from experience, that s/he reflects on what was done to rectify my problem and figures out how, next time when a similar situation arises, s/he might handle it even more efficiently.

This more comprehensive definition of competence is illustrated in Figure 1.

Figure 1 A comprehensive view of competence



Such a definition aligns with the government's present focus on developing 'clever [1]' workers more easily than one which takes a Taylorist perspective and concentrates only on developing an agglomeration of 'performance skills'. It also aligns with the findings of my own research concerning effective change managers (Scott, 1990b), the views of my colleagues (Gonczi, Hager & Oliver, 1990, Field, 1990: Ch 2) and the central thrust of recent government reports (e.g. NBEET, 1990: 42). There are also close parallels with the findings of research on expertise in areas as diverse as racetrack handicapping, chess playing, medical practice, judicial decision-making, dairy processing (Tennant, 1991).

Testing the notion that competence involves more than the possession of appropriate performance skills

Over the past year, I have sought to establish if this more comprehensive view of competence also matches the experience of workers and adult educators. Most recently, at the 1991 La Trobe University/CATALPA[2] Summer School on Workplace Basic Education, I sought the views of some 80 vehicle building industry trainers/workers and adult basic educators on this perspective.

I broke the 80 participants into small groups. I asked the two groups of participants from the vehicle building industry to take a line worker's job and see if they could tell me what might distinguish a competent performer from an incompetent one. I asked the six groups of adult basic educators to do the same thing for a workplace basic educator.

I was particularly interested to see if, irrespective of the complexity and nature of the job, everyone agreed that competence (cleverness at work) involved not only job specific performance skills but a stance and way of thinking similar to that illustrated above in relation to our competent automotive mechanic.

The results presented in Appendix One suggest that they do agree. They identified a number of components of stance and way of thinking which align well with what has already been suggested.

In terms of *stance*, they suggested that a competent worker can tolerate ambiguity, is a self starter, shows initiative, can take sensible risks, can question, is willing to work collaboratively with others, is a good listener, is willing to face and learn from errors, is eager to improve work practices and update skills, takes pride in what is produced, is flexible, customer driven and creative.

In terms of *way of thinking*, they suggested that a competent worker has the ability to reflect-in-action (that is to take the unexpected situation, skilfully work out what lies behind the problem and then match a suitable response). It also seems that what is necessary is the ability to reflect on an experience in order to learn from what happened. Finally they felt that the competent worker needs the ability and confidence to plan his/her own informal as well as formal learning projects (this would appear to require the ability to define learning needs, plan what to do, use a variety of learning resources effectively and evaluate the results).

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[1] This also aligns with various dictionary definitions of 'clever'
- dexterous, deft, able ingenious, skilful, good natured (Chambers)
- bright mentally, having quick intelligence, able, dextrous, nimble, showing adroitness, ingenuity (Macquarie)
- nimble, adroit, dextrous, possessing skill or talent, adroit (Oxford)

[2] Co-ordinating Agency for Training Adult Literacy Personnel in Australia

They clearly indicated that the components of stance and way of thinking they identified were what distinguish 'clever' from 'satisfactory' workers. They also suggested that these were the same ingredients which workers have to possess in order to consistently, confidently and effectively update their performance skills as the demands of their particular jobs inevitably change. What we now need to do is to more systematically check if what was suggested holds across a variety of contexts.

One further point. Participants emphasised that just as the nature, complexity and number of performance skills can be expected to vary with the nature of the job so too might the demands upon one's stance and way of thinking.

For example, the job of a senior manager is constantly peppered with unexpected dilemmas and the demands of dealing with the murky and unique problems created by large numbers of human beings—here a comprehensive and well developed stance and way of thinking of the type outlined above (and in Appendix 1) would be essential.

On the other hand, a line worker might expect comparatively greater predictability in his/her job and dilemmas of less variety, number and complexity. This is because the parameters of the job are more clearly set, because most (but not all) of the time s/he is dealing with 'things' more than with people. In consequence the demands on stance and way of thinking may be less.

However the difference, I would argue, is mainly one of degree. Furthermore, if the line worker wants to be given the chance to rise to a senior management position (as is anticipated under Award Restructuring then s/he will have to develop a stance and way of thinking commensurate with the demands of the job and be equipped to plan out a course of action to get there.

Despite the results of this simple piece of research and more comprehensive analyses elsewhere (see e.g. NBEET, 1990 and Gonczi et al, 1990) stance and way of thinking receive comparatively little direct attention in most educational organizations. I would argue that the main focus in many of these places is still on adaptation, that is on ensuring that students acquire preset knowledge or skills and then reproduce them under set conditions (often only once and out of context) to a set standard in order to be assessed as 'competent'.

The relationship between how we define competence and how we educate workers

How exactly might the way we define competence influence the way we train? How might a limited view of competence (one which concentrates only on set performance skills) encourage a limited approach to training, an approach that might ultimately be at odds with what we really want?

If we see 'competence' in a job as only involving a long list of mechanistic 'performance tasks' which require a fixed set of 'performance skills' to do them, if we see it as only involving tasks which must be done in a set sequence to a set standard, we are likely to be attracted to seeing training as something akin to a *manufacturing process*. Such a view is especially tempting in those industries where the focus of daily work is on cost-effectively producing items to set quality standards.

In this manufacturing view of adult education, trainee workers are viewed as being raw material. The aim is to cost-effectively mould them into a standard job configuration, within prespecified tolerances. Because they are seen only as raw material, it follows that workers don't need to have a role in deciding what should be learnt, how it should be learnt or when or where it should be learnt. Standardized teaching is valued and trainees are processed through standardised procedures and drilled to perform predetermined tasks to a set standard.

The guidelines for assessment of the outcomes of the learning process are expressed in clear standards (tasks, conditions and performance standards). For example:

'The worker, given machinery and portable power cutting tools and/or hand tools (e.g. snips, notches, plate working machines), will cut light metal sheet to an accuracy of 1mm'.

This is not to say that expressing performance standards so clearly and adopting a manufacturing approach to training isn't the most appropriate way to go when we want to develop simple, specific skills.

It's just that we may be led to put exclusive emphasis on skills in isolation from one another and to teach them separately from the dilemmas of a particular job and work context. It is highly likely that we will also downplay the development of the type of stance and way of thinking we need if we want clever as well as technically proficient workers. That is, the manufacturing approach to training usually gives far too little attention to the process by which workers choose when and when not to call upon performance skills and to the process by which they might decide that particular skills or workpractices need upgrading or replacement.

What do we get if we adopt a 'manufacturing' approach to worker education?

Let's (somewhat provocatively) suggest how a manufacturing approach to worker education which is rigid, standardised, 'outside-in', prepackaged, modularised and behaviourist may teach a stance and way of thinking which are the exact opposite of what we might seek in a clever worker.

In being treated as raw material to be moulded or processed, trainees are likely to learn to value being uncritically obedient and having always to wait for orders (rather than the importance of showing initiative, of being entrepreneurial or thinking critically about how to improve work practices). They are likely to learn to value passivity, passing the buck (rather than taking active responsibility). They may emerge unable to face and handle the uncertain and unpredictable elements of daily practice (even if, on the surface, their job appears routine). Having had little practice in active group problem solving, they may find working collaboratively with others to solve mutual work problems difficult. They are likely to falsely assume that there is always a right and wrong answer, a correct way to do everything, a set procedure which must be uncritically followed. This is unlikely to help them to be flexible, creative or customer driven. They may learn that taking sensible risks, thinking laterally is unnecessary or inappropriate.

They will be unpractised in thinking on their feet (reflecting-in-action). Having been given little coaching and practice in learning how to learn they are likely to find themselves ill-equipped to work out when and how to upgrade skills. They may assume that 'important' learning can only occur formally in the training room or on-the-job under the 1:1 instruction of a supervisor. They will be unaware of the power or nature of informal learning. The entire workplace will not be seen as full of continuous learning opportunities (as organisations like ICI are currently doing).

In summary what we are likely to get under the task analysis/performance skills view of 'competence' and the manufacturing approach to training which suits it are technically proficient workers but not clever ones.

> Work roles are not a bundle of tasks or routine procedures. To base standard development methodology on this premise creates problems at all levels because our expectations of the infrastructure are fixed by the narrow model. VET (vocational education and training) delivery agents are capable of analysing a task to within an inch of its life yet the aspects of the work role which are increasingly valued in the economy—adaptability in the face of change, management of roles and systems, taking responsibility for contingencies, standards and output, creativity, flexible responses to new market demands remain worthy aims which everyone routinely salutes and does little about (Mansfield, B, 1989:34)

Where to now?

To act on the points made in this paper we need to:

- Establish if the comprehensive definition of competence proposed in the paper aligns with the perceptions held by key players involved in current training and education initiatives in Australia.
- Look critically, in the light of the results of this survey, at how we formulate and express Industry Standards.
- Confront the thorny problem of how we can most feasibly and reliably assess stance and way of thinking. If we are serious about developing and identifying clever, not just technically proficient workers, we must allocate time, money and talent to this task. We must recognise that by focussing only on the assessment of performance skills and training theory (because doing this is relatively straightforward) we are ignoring what may be the crucial elements which distinguish clever from satisfactory workers.
- Look more carefully at the quality and nature of training that is being delivered under the Training Guarantee Legislation, Award Restructuring and workplace reorganisation. We need to look, in particular, at how comprehensively and effectively such initiatives are developing not just performance skills but stance and way of thinking.
- Commission or identify 'successful' attempts at worker education which address the development of all three components of competence, not just the development of performance skills. We need to document how the organisers went about developing, implementing and evaluating these initiatives and disseminate these details across Australia.
- Locate this specific evaluation research on competency development and assessment within a broader training evaluation strategy.

Appendix 1

Results of a survey of what distinguishes a competent from an incompetent worker/abe teacher

20 vehicle builders, trainers participated to produce the results in column one, 60 adult basic education teachers, tutors and staff developers participated to produce the results in column two. If the characteristic/skill was noted more than once this is indicated by*

Competent Vehicle Builder	Competent Adult Basic Ed. Teacher
Performance Skills	*Performance Skills*
Knows job and processes involved	Knows tools/resources
Has ability to perform tasks to set standard and condition*	Can effectively set and achieve goals*
Meets quality standards in product	
Understands and exercises safety standards	
Effective at communication	Communicates effectively/works well with staff/effective interpersonal skills**
	Effective negotiator
	Recognised as a leader
	Can effectively foster confidence in students
	Provokes thought and questioning in students
	Can effectively set/achieve goals
	Can impact knowledge, values, attitudes
	Can successfully make and locate resources
	Can create and sustain a positive class climate
	Effective at formal/informal evaluation*
	Helps learners to be independent
	Builds on student strengths
	Has up-to-date knowledge of recent trends and professional thinking*
Stance	*Stance*
Self starter/shows initiative*	Self starter/motivated
Customer driven approach	Shows respect towards people
Committed to continuous improvement	Wants to be involved in professional development/values personal growth*
	Willing to learn with and from students
	Not afraid to challenge
Flexible attitude, open	Flexible/change agent/copes with new sit'ns
Likes being creative	Has confidence to depart from scripts
	Takes risks*
Responsible	Sensitive/responsive to student needs*
	Allows for active participation
Pride (workmanship)	Care/empathy/good listener*
Team orientated	Supportive/likes to work with people*
	Is collegial*
Positive/optimistic	Enthusiastic/energetic
Willing to have a go	Charismatic
	Bit mad/sense of humor*/extrovert
	Personally and professionally confident
	Is clear on principles and values/committed

Competent Vehicle Builder	**Competent Adult Basic Ed. Teacher**
Way of Thinking	*Way of Thinking*
Is adaptable	Adaptable in methods, materials, response to changes in context, aware of class climate/reaction
Anticipates problems	Reflective and questioning, inquiring mind
Positive, creative thinker	Can work out what to do within limits of resources
Sorts out unexpected problems correctly*	Intuitive, effectively reads students needs
	Can look after own professional learning
Sees new and better ways of doing things	Can be flexible within class—if a plan isn't working can adjust on the spot
	Innovative/resourceful*
Incompetent Vehicle Builder	**Incompetent Adult Basic Ed. Teacher**
Performance Skills	*Performance Skills*
Unable to perform tasks to set standard	Dated/obsolete knowledge base/methods*
	No content
Inconsistent task performance	Ineffective in performance in class
Unproductive	Blows with the wind—unclear
Poor communicator	Unable to accurately read students
	Unprepared/disorganized
	Zeros in on negatives
	Too much 'warm fuzzies' and not enough 'toughlove'
	Doesn't encourage independence
	Sarcastic, Condescending
Stance	*Stance*
Bad Attitude to the job in general (see below)	Expects all to go as planned/sticks rigidly to curriculum even if it is clearly not working
	Ignores doesn't care for students or outcomes/poor listener/insensitive
	Unaware, ignorant
	Sexist, racist (has restrictive hidden agendas)
Blindly follows the leader	Accepts expectations of organization blindly
Unwillingness to perform tasks	Lacks initiative
Lack of motivation and interest	Lack of goals, vision, empathy, interest
Lack of initiative*	Lack of commitment
Resists change	Resistant to change
	Inflexible
Uncooperative	Lazy
	Disorganised**
	Lacks respect for others
	Wants to dominate group or class/always 'right'
Non participative	Uninterested in professional and personal development
	Negative/pessimistic
	In it only for the money/sees ad. ed. as a soft option for a career—self seeking
Way of Thinking	*Way of Thinking*
Can't solve minor problems when they arise	Fails to respond to changing circumstances
	Rigid
Doesn't notice things about to go wrong	Doesn't question

This strategy would focus on the systematic evaluation of how 'successfully' current Australian worker education programs are being developed, implemented and sustained and whether they are having the desired impact not just on learners' competence but on productivity, efficiency, competitiveness, inventiveness and profitability.

- Establish a national public education initiative which directly addresses the connection between notions of competence, cleverness and various approaches to worker education and program evaluation.

Much of the difficulties identified in this paper stem from not being aware of the alternatives.

The eagerness with which all the key parties involved in the current expansion and diversification of vocational education and training take up the above agenda will be testimony to how seriously they take the call for the development of a clever Australian workforce. If nothing is done about this agenda we can hardly claim that we are clever in the way we train and assess our workers. We will be saying one thing and doing another.

References

Field, L.: *Skilling Australia*, Melbourne, Longman Cheshire, 1990

Gonczi, A, Hager, P and Oliver, L: *Establishing Competency-Based Standards in the Professions*, National Office of Overseas Skills Recognition, Research paper No 1, Canberra, DEET, Dec 1990

Mansfield, B: Competence and Standards, in J. Burke (ed): *Competency Based Education and Training*, London, Falmer Press, 1989 (pgs 26-38)

NBEET: *The recognition of vocational training and learning*, AGPS, NBEET, 1990.

Scott, G.: Competence and Workplace Basic Education, *CATALPA Bulletin*, Vol 1, No 1, 1990: 4-7

Scott, G.: The Change Process in a Teacher Education Institution, Ed.D. Thesis, Toronto, University of Toronto, 1990.

Tennant, M.: *Expertise as a Dimension of Adult Development: Implications for Adult Education*, Sydney, School of Adult & Language Education, University of Technology, Sydney, 1991.

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QUALIFIED FOR THE JOB: THE NEW VOCATIONALISM

TRUDI COOPER

T. Cooper, 'Qualified for the job: The new vocationalism', *Education Links*, no.42, 1992, pp.18–22.

The Commonwealth Government has embarked on the most ambitious industry training program ever attempted in Australia. The stated aim of 'training reform' is twofold. Firstly, to achieve a national consistency in training across all states, and secondly to change the basis of training from inputs-centred to outcomes-centred.

To clarify this last point, most current training is based on the premise that all trainees go through an agreed educational and skills-based process, at the end of which they are assessed to see whether the knowledge and skills which have been taught have been absorbed at the appropriate level. It is the intention of the new reforms to change the basis on which training is assessed, to one where outcomes are the sole basis of assessment. This means that if someone can do a job, they are recognised as qualified, irrespective of the way their skills were obtained. It is irrelevant to their assessment whether they went through a formal training program, whether they taught themselves, whether they learnt the skills by doing the job, or whether they acquired the skills by their other life experiences or in other forms of employment.

The intention of this article is to outline how the proposed training reforms will be implemented and to examine the proposals in the light of the British experience of competency-based training. Although the reforms are being presented in the language of reform, liberalisation and even radical politics, the proposed structures which are being instituted around training will not enable these promises to be realised. I will show that the practices being instituted are both ideologically and practically more closely aligned with the New Right, where market forces and employer needs are paramount, and where cost cutting both for workers wages and for government funding of education and training take precedence over quality. The final section of the paper will outline possible strategies for surviving competencies.

The new training proposals

The training reforms propose that within each industry all training will become 'competencies' based. Each industry, under the auspices of the appropriate

Industries Training Board, must identify the set of skills (or competencies) which a person must have in order to be competent in the specified job. These competencies are to be derived from needs analyses which have been conducted within the industry, and from employer duty statements. The results of these are to be rationalised in order to remove or articulate any differences between states.

Each of the competencies is then translated into behaviourally based performance indicators. These are intended to serve to demonstrate, in objective terms, that a skill has been learnt. These form the basis of assessment. A modular program of training is then designed to develop the competencies which have been identified. A training course comprises sixteen modules, each not exceeding six days teaching, or the equivalent in another form of training. This might include shadowing an experienced worker/practitioner, individual study, or any other means of learning which would enable the competencies to be gained. Private Training Providers (who may be commercial trainers, employer based trainers, government funded, eg, TAFE, or community based trainers) can then register to become accredited training providers (at an annual cost of $2000 for the first year and $1000 subsequently, with double fees for commercial training agencies). Assessment is to be undertaken by registered assessors, who may be the training provider, or may be a separate group. The Employment and Skills Formation Council itself noted that one of the reservations expressed by industry was the fear that the assessment processes in particular were overly bureaucratic: it created an entirely new profession of competency assessors, and with that the need for trainers of competency assessors, and trainers of trainers, *ad infinitum*.

The implementation process for identifying the competencies and agreements on performance indicators involves tripartite consultation between unions, government and employers, with training providers having observer status, and the overall process being overseen by the appropriate Industry Training Board (ITB).

The scheme has been presented as progressive on the basis of a number of different benefits which it is claimed to bestow on the worker and on industry, and on the basis of its supposedly more enlightened pedagogic underpinnings.

The benefits it proposes for the worker are 'portability' of skills, the recognition of prior learning, and access to qualification for those who are currently excluded by processes which stipulate specific entry requirements prior to commencing training. It would also allow experienced practitioners, without formal qualifications, to apply for recognition of their skills without going through additional formal training. Training gained in one state would automatically be recognised in other states and territories.

The benefits proposed for industry include greater control over the content of training and education, in return for the financial inputs which employers are expected to contribute through the training levy.

The pedagogic advances claimed in this reform are that outcomes-based training is more flexible in meeting different learning needs of individual students, by taking into account that different people learn in different ways and that different people learn at differing speeds; and also that people do not arrive at training courses as empty buckets, that they arrive with differing skills, experience and knowledge.

The agreement of *portability* of qualification over a wide range of industries is, to my knowledge, an untested practice. There is no reason to believe that portability is an unquestionable advantage to the worker. At face value, it seems attractive because it means that if unemployment affects one industry, those workers can use their skills in alternative industries. However, unemployment does not affect all sections of the community equally. In times of recession, the more highly qualified trade down to less skilled work and the unskilled workers drop out at the bottom. Portability is likely to assist this process, especially by easing access to skilled manual occupations, which are traditionally the preserve of the working class, and are protected by long periods of training prior to entry, which through apprenticeship schemes are most commonly only available at the age when the offspring of the middleclasses are seeking professional qualifications. There does not seem to be any suggestion that competencies will offer a means to trade up to the 'higher' professions; that tradespeople may become lawyers or brain surgeons, through home study and the demonstration of necessary practical skills.

Recognition of prior learning, as a concept, is unproblematic. However, when an analysis is undertaken of how prior learning can be assessed, difficulties arise. With manual and objectively testable mental skills, the skill itself can be tested directly in a practical setting. However, the further the key tasks are removed from being a collection of physical skills, the harder it becomes to assess competence. Where competence rests on the ability to make complex judgements, to which there are no universally agreed right answers, as, for example, is often the case for a youth worker, equitable assessment of prior learning is very difficult.

The British experience

1—a conservative model

A National Competency based industrial training scheme has been operative within Britain since 1986, under the auspices of the National Council for Vocational Qualifications (NCVQ). It was introduced by the Conservative Government as the training element of their industrial and economic reforms. It was targeted initially at young people destined for blue collar and pink collar manual and service occupations. Its aims were to undermine the bargaining power of unions, to impose centralised control over the school curriculum, and to put the employer in the driving seat of education and training, including the non-academic, school and college curriculum. The rationale for these reforms was pure free market, which changed education (at least for the working classes) from something which was concerned with the development of the whole person, to something which was limited to preparing students for their role as employees in the labour market. This was undertaken at a time when youth unemployed was at record levels, and fewer than ten percent of young people of school leaving age were able to find employment.

Under the scheme, young people could build a portfolio of competencies, designed in such a way that skills were fitted into a matrix, to allow either a horizontal progression (of gaining, for example, many discrete competencies at a basic level), or vertical progressions where the skills gained at one level were developed at the next. The scheme has had mixed effects. For example employees previously entering unskilled work can now be asked for evidence of competencies or qualifications in areas such as social skills or general work skills (ie, the work ethic).

For those entering skilled manual work, as represented by traditional apprenticeship fields, the scheme was fairly easily adopted as a basis for training. This was because there was little difficulty in identifying and agreeing the necessary skills, and the level of performance equated to competence. This occurred because traditional apprenticeship schemes had already developed agreements within each industry about these issues, through the various industry training boards which had developed to monitor and moderate apprenticeships when these formed the basis of training in craft industries. Within this scheme there was no formal recognition of prior learning, except as 'signed off' in the portfolio. Additionally, most of the skills being measured were manual or concrete skills which are amenable to objective testing.

The industrial issues which arose included the issue of oversupply and consequent depression of craft wages in some industries. The traditional forms of apprenticeship meant that there was some link between the numbers entering apprenticeships and future employment prospects. This ceased to be the case as competing training agencies moved into the NCVQ scheme, each attempting to maximise the numbers of young people they could attract to their courses. There was also scepticism amongst craft trained workers in some industries as to whether a course, which usually consisted of only six months training at a government (or latterly, a commercial) skill centre, would give sufficient breadth of experience and practice, to be considered equivalent to a five year apprenticeship, whatever competencies might have been achieved.

2—A radical model

From an entirely different tradition, youth worker training also moved tentatively towards a competency base. Within the Youth and Community work fields, the move towards competency based training emerged from radical traditions, concerned with demystifying the professions. Respect for the skills and insights of indigenous workers arose from the perception that these workers could act as a more effective bridge between the professionalised agencies and working class and ethnic cultures.

The radical stance was also based on the pedagogy that education should be constructed around those needs and perceptions which the learners identify, and should acknowledge, and build on, the skills and knowledge which the student already possessed. The Youth Leaders for the Inner City project provided a testing ground for these ideas.

The project was a government funded initiative aimed at training young people from working class urban areas, who did not have formal educational qualifications, to become youth and community workers within their own communities. The government agenda was primarily prompted by the requirement to stem urban unrest and this was seen as potentially an effective means of gaining access to these communities. The scheme particularly targeted black young people, because black workers are under-represented within the youth work field, and black communities were politically the most troublesome to the government in terms of high profile street disturbances and resistance to policing. Approximately equal numbers of young men and young women were recruited. The youth work field embraced the scheme as an opportunity to provide access to training to those usually excluded. The trainees were offered paid positions in local authority employment as unqualified youth and community workers, and were paid full award rates. Training was organised through closely supervised work which was designed to make use of their existing talents and to develop new skills. Some parts of the training occurred on the job and some parts occurred in the context of structured training away from the workplace. All training occurred during paid work time.

A national body (on which employers, unions and training agencies are represented) monitors and validates all the professional training of youth and community workers, and predated the competency based training schemes. Youth work in Britain is highly unionised, has nationally agreed award conditions, and is generally located within the education sector, where its purpose is defined in terms of social/political/informal education. Because there is broad agreement in Britain about both the purpose of youth and community work as an educational service, and its central values (which include working to counter oppression and inequality by empowering young people and communities), there was no significant disagreement about core competencies for workers.

Some important points to recognise about this scheme are, firstly it was not cheap. Because of an aim to tailor each student's learning to their needs within the context of the scheme, in the scheme of which I have most knowledge, the formally taught part was staffed at a ratio of three tutors to eighteen students, for ten hours per week. In addition, the students had individual workplace supervision for one and a half hours per week, during working hours. They received book allowances on top of their wages and were also paid for all their work or training related travel. Compared with the costs of training youth workers through tertiary institutions, the cost per head is probably at least four times greater, although the exact ratios are not easily calculable because of hidden costing. Also the trainee posts were not replacements for existing workers but extra, specially created posts, guaranteed for at least the duration of the training period of three years.

The radical notion of competencies based training for youth workers in Britain has not been without its critics. Some people have cautioned, against over romanticising the skills and image of the voluntary, indigenous community based worker, recognising that such workers often collude with maintaining oppressive community structures, in particular, by upholding sexist practices. For these reasons, it was considered of utmost importance that the training of youth workers, or an assessment of skills of unqualified workers seeking recognition, should not make an objective assessment of skills without tying them to a clear, anti-oppressive value base. Others also argue that competencies in the context of youth worker training fails on two counts. The first failing lies in a conceptual weaknesses. They argue that the step from competence to competencies is not a move from singular to plural, but rather a move from one concept to another. It is argued that the singular of competencies is not competence but 'a competence'. Thus a competencies-based scheme measures competence in a series of discrete tasks. Whether one is then competent as a youth worker depends on whether the total competence of a youth worker is amenable to being completely reduced to discrete elements. If this is not possible, then competencies-based assessment also fails. To expand on this first point it is possible to distinguish between those tasks which are amenable to reductionist analysis and those which are not by asking 'Are there agreed right answers'? In other words, if the industry is one for which it would be possible to design an expert computer system which could give correct information for any given scenario, then the reduction from competencies to competence is possible. Otherwise it is not possible to develop competence through the development of discrete competencies. The second position applies in relation to youth and community work.

It is preferable, in the context of youth worker training, to provide an educational/training process which aims at developing the learning capacities of students, rather than one which tries to teach them every skill which they may ever require. It is preferable to provide educational opportunities which will enable them to understand a number of opposing value systems, and to clarify their own, and for them to understand the range of purposes which exist within youth work agencies, so that they will be able to form a view on how they would prefer to work, and then to develop methods which they can use effectively to achieve those ends.

The Australian context

The conservative model presented above shares many features with the proposed Australian scheme. Both schemes stress the role of education as being to prepare young people for their place in the labour force. Both aim to increase the mobility of the workforce especially in traditional working class and lower middleclass occupations. Both will result in greater centralised control over the curriculum in school and in technical and further education establishments. Both will increase the spread of credentialism and paper qualification into industries which had not required certification. There are some differences, especially in the role of unions in the consultation processes. In the British model the unions were excluded, whilst in the Australian model they are partners in the agreements on competencies. In some industries, the power of unions may be considerable, but in industries where the workforce is mostly part time or temporary, unionisation is usually weakest. In circumstances such as these where the workforce is most vulnerable, there will be the least effective input from unions, and employers will have the greatest power.

To continue with our case study, if Australian proposals for youth worker training are compared with the youth workers training scheme outlined above, few similarities emerge. There are certainly no proposals to pay trainees at award rates, as there is no award rate in most states and no proposals to pay trainees any wage at all, although they may be eligible for some kind of training allowance. Moreover, unlike in Britain, the youth work field is generally weakly unionised, and therefore it would be difficult for the union to undertake a prominent monitoring role in the agreement of training objectives and methods. The field itself is less cohesive, with no universal agreement on either purpose or values. The levels of funding at this time are unknown, but it seems unlikely that the training element will be sufficiently well funded to permit quality individualised training, as attempted under the British scheme.

More generally, the evidence from the NCVQ scheme in Britain is that, far from improving access to better job opportunities, the scheme actually had the effect of imposing entry qualifications on jobs where previously none were required. Secondly, it is not entirely clear that portability will be beneficial to all levels of the workforce. Portability seems likely to be confined to working class occupations and maybe the semi-professions where its negative effects are likely to decrease wage levels through increased competition for positions. Thirdly, it remains to be seen how the process of recognition of prior learning will operate, and in whose interests. As with portability, its main function may be to increase horizontal and downward mobility in the semi-professions, whilst doing little to facilitate upward mobility of those lacking formal qualification. Much will depend on how the competencies are defined in each scheme and how much flexibility is permitted in the assessment process. Nevertheless, in terms of recognition of qualifications across states, there does seem to be some advantage to the scheme, although it is an advantage which arguably could have been achieved by other simpler means.

From the point of view of industry, the training proposals do seem to offer an education system geared towards its needs, and a potential lowering of wages, especially in manual and semi-professional occupations, through a weakening of the bargaining power of unions, and an ending of restrictive practices and demarcation disputes brought about by greater permeability between job boundaries. But even industry is divided about whether the training arrangements will be beneficial or damaging. The doubts are most strongly voiced by small enterprises which frequently rely on employing few workers, with each worker possessing a wide range of skills, which are not necessarily formally certified. One concern seems to be that assessment of prior learning could leave them open to claims for higher wages from workers who, at present, could not claim rates because they were not formally qualified. In larger organisations this is not usually a problem, because there is a greater division of labour. Thus small businesses feel that the scheme is tailored more to the needs of large enterprises. Similarly, the larger employers are better represented at the Industry Training Boards. Thus, the needs of industry seem not to be homogeneous, and the needs of some are better met than others.

At least one potential advantage of the scheme is that learning may be better tailored to the needs of the individual. It should enable those who are good at directing their own learning to be able to do this. Whether it will benefit other groups depends on the extent to which different training methods are used by the various training providers. If all use similar material and methods, this advantage will be more apparent than real. This possible advantage must be set against two major disadvantages. Firstly, the encompassing of the content of training in a closed system of measurable behavioural skills. In those industries where this does not represent the total skills required for competence, this will be a real loss. Secondly, the narrowing of the purpose of school and TAFE education, for the non-academic, to simple preparation for the labour market.

Strategies for surviving competencies

Competencies are with us, and are likely to stay until such a time as industry or the electorate, can persuade the government of the day to adopt a less rigid and bureaucratic approach. In order to survive competencies, the education lobby has an important role.

1. Unionise, both to protect conditions and to provide an alternative forum for the discussion of education and training issues.
2. Seek to influence by whatever means are available, the content of training offered. Broaden the base of training modules to include discussion of values, and purpose and other skills which cannot be easily measured in discrete objective behavioural terms. Resist closed system curricula.
3. In any relevant arena, keep alive the debate on the purpose of education, and keep reminding people that no education (or training) is

value free, and that education *can* have wider purposes than as the producer of a well conditioned labour force.

4. Resist being co-opted into accepting the values systems which assert that all judgements of worth should be made primarily on a monetary or use base. Some worthwhile human values transcend this.

The politics of vocationalism offers to all involved in education a challenge; of being able to clarify not only what we oppose and why, but also what we seek, and how.

34

FORD FACTORY LEARNING

MIKE BROWN

M. Brown, 'Ford factory learning', *Education Links*, no.44, 1992, pp.13–19.

Introduction

Imagine the learning model and education system that might result from a multi-discipline collaboration between engineers, economists and accountants. This article argues that education is being driven not by educators and not by educational theorising, but by just such a team informed by the bureaucratic wisdom of the last decade, economic rationalism.

The analogy is offered between the systematising of work-related learning and the methods of work organisation synonymous with the Ford car plants of [earlier] this century. It is argued further that rather than entering a period of post fordism, as some social commentators would suggest, we are witnessing the re-emergence and application of fordism to new areas or fields of work. Hence, neo-fordism becomes the more appropriate descriptor.

Fordism

Fordism represents many different ideas to different people. In this context, I wish to take up two of the main aspects. Firstly, the notion that fordism is about mass production for mass consumption. This idea includes the tendency towards standardisation of the product. One of the consequences of standardisation is that production processes can utilise repetitious assembly line methods

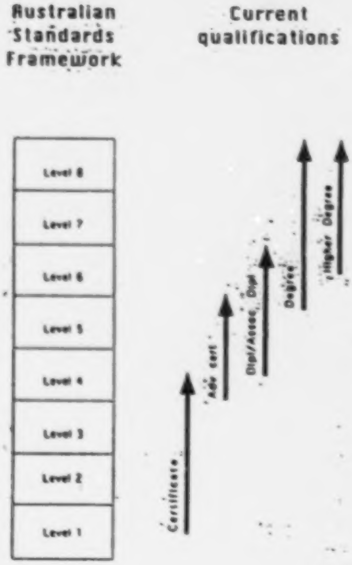
Secondly, fordism developed in an attempt to deskill craft workers and their holistic patterns of work. The production line was a means for shifting control from the craft workers to management. The line required large numbers of unskilled and semi-skilled workers who, in many instances were reduced to operatives and appendages of machines. Employers were able to more precisely purchase the quality of labour (skill level) most appropriate to the specific demands of each job. Workers for their part, were separated from each other and became alienated from the means of production.

The technology and the work organisation became the means of control. Though it must be remembered that all technology has designers. Designers have their own values and also work within set parameters. In many instances, designers are co-opted or seduced into alliances with the interests of capital, after all, *'those that pay the piper play the tune'*.

The structures for work-related learning

Under the auspices of restructuring and the workplace reform agenda we are wintnessing a revamp of the structures and processes of Industrial Relations. These include, the restructuring of awards, the Structural Efficiency Principle and the Training Guarantee legislation. While there is no agreement about the desirability of the effects, there is no denying that these have sent shock waves through the education and training systems especially through those sections regarded as being work-related.

Figure 1. This diagram depicts the relationship between the Australian Standards Framework (ASF) Levels and current qualifications



NOOSR Research Paper #7 (1992: 11)

The National Training Board (NTB) in their document entitled National Competency Standards: Policy and Guidelines (1991) provided a framework for 8 occupational levels. These are known as the Australian Standards Framework or simply ASF levels. Each level is denoted by a brief and very general description, these are called standards. These are intended to provide a means of bench-marking across and between industries and occupations.

To take these ASF classifications in pairs, Level 1 & 2 are considered Entry level to the workforce. Level 3 is considered equivalent to basic tradesperson level and Level 4 with technician. Levels 5 & 6 refer to work considered para-professional, while Levels 7 & 8 are used to describe the professions.

The ASF level is the first step in the more comprehensive, and what the NTB calls, a complete standards model.

This model has been borrowed directly from the UK system of National Vocational Qualifications (NVQ's). Under the guidance and wisdom of DEET, this structure is presently becoming the foundation for all work-related learning in Australia. Interestingly, what was begun in England by the conservative government under Thatcher is being advocated by the ACTU's Laurie Carmichael and the Labor parties John Dawkins. So what sort of reform are we really implementing?

Different levels of skill are more, or less, expensive for employers to purchase. This was referred to earlier as the quality of the labour. Though purchasing the appropriate quality of labour to match the requirements of the job is not the end of the story. Once purchased, the labour has to be transformed into work actually performed. Employers attempt to ensure this occurs through the design of technology and the labour process, middle management and general supervision.

In part this analysis offers a suitable perspective from which educators can begin to view and understand the rising emphasis on competency and the more instrumental notion of competencies.

Consider the following NTB definitions,

> Competency is the ability to perform the activities within an occupation or function to the standard expected in employment. (1991:30)

> While, a competency comprises the specification of the knowledge and skill and the application of that knowledge and skill within an occupation or industry level to the standard of performance required in employment. (1991:7)

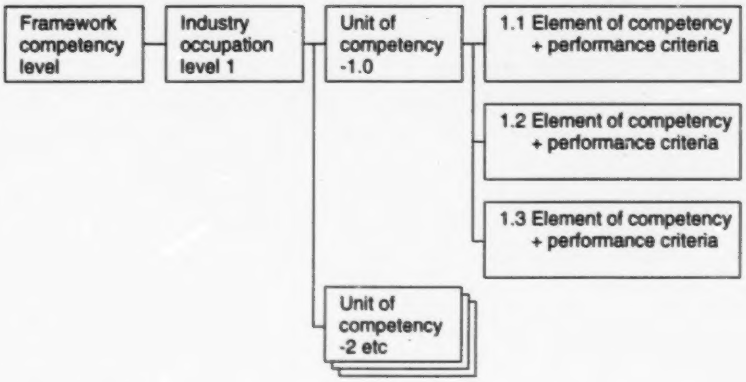
Those familiar with the history and evolution of competency statements would be able to situate this thinking alongside previous emphasises on behaviour, performance and observable outcomes. For some of us, the defining of learning in only these terms remains problematic. Competency reduces learning to that which is observable and worth rewarding by employers.

The government's agenda

The Government agenda for reform has little to do with social and political improvement. Rather, on the macro level, their efforts can be aligned with the support and improvement of Australian capitalism. Competition in the global market place and Australia's relative economic positioning has been the imperative driving national reform. Dominating the means for achieving these intentions has been economic rationalism.

The government has taken on a commitment to sharing the cost of essential services. This sharing out, by its nature means the development of partners, which, in the case of education, have been described as the end users. The users are defined as the employers and the learners. The government is committed to implementing a user pays approach to education. This shifts or shares the cost out amongst those who they perceive are the major beneficiaries. This approach owes much to, and also shows, a strong belief in human capital theory.

Figure 2 This diagram is described by the NTB as depicting a complete standards model. It shows the flow in the development of national competency standards beginning from an ASF competency level and ending with the performance criteria. (In many ways, this model stands as a framework for organising the illustrations an arguments in this article.)


Framework competency level
Industry occupation level 1
Unit of competency -1.0
1.1 Element of competency + performance criteria
1.2 Element of competency + performance criteria
1.3 Element of competency + performance criteria
Unit of competency -2 etc

NTB (1991: 24)

Briefly, this theory posits that education and training improves the rewardable worth of human beings, thus, improving human capital. This is said to occur in two ways. For the individual, investments made in time, including loss of recreation time, and money is supposed to give a suitable return through access to better jobs and increases in wage and salary return. Hence the time put into learning will be rewarded through future salary return. Likewise for the employers, time and money spent on training by an organisation is said to offer a return on this investment through the increased value of the work capabilities performed. Multi-skilling, the restructuring of awards and the removal of demarcations are the latest strategies aimed at utilising an upskilled workforce.

Like any marketing strategy, the government has needed to improve the appeal of education to those who are going to be required to pay, the consumers. Employer involvement in picking up some of the costs depends on education being seen to be directly relevant to their needs and interests. Subsequently, public inquiries and reviews are being chaired by prominent representatives of business and industry. These offer credence to the claimed formative contribution of employer interests within education, though surely under these circumstances it becomes appropriate to start substituting training for the word education.

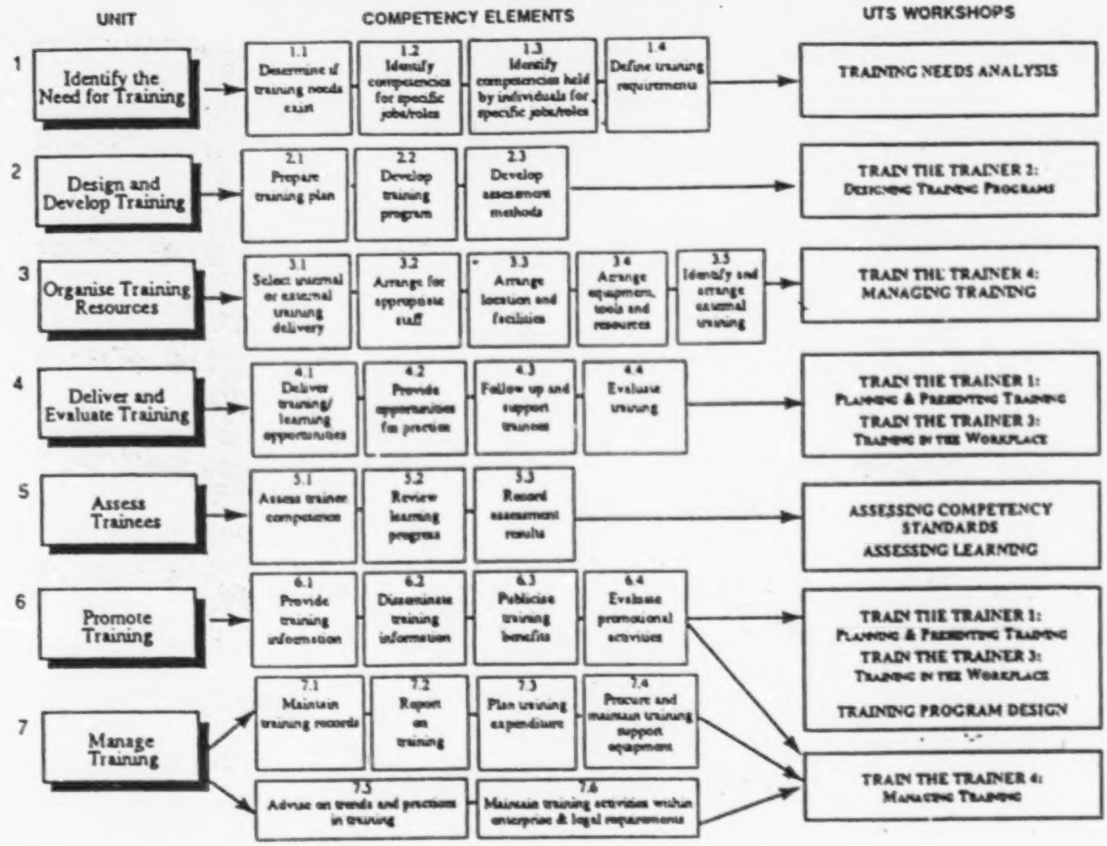
Trade unions, for their part, seem to have traded off their historical commitments, replacing this with recognition and inclusion into the institutions and structures of decision making within the state. Together, tripartite arrangements are determining what is needed from education to satisfy these collective interests. However, this is not necessarily in the interests of the workers, the learners or educators. Radical educators have recognised this shift, and while partly uncomfortable with their separation from the union movement, are offering resistance and critique. The obvious strategy is to point out that the labour movement is far from united in its commitment to tripartite structures. In addition, this division has a stratifying effect in that it is separating rank and file resisters from the accommodaters amongst the union leadership. This can be seen as representing the division between the rhetoric and the lived experience.

Figure 3 This diagram is taken from advertising material for a series of related short courses. This is included as an illustration of how the competency standards, through the units and elements are determining Training responses. In this case, these responses are workshops designed by UTS.

HOW TO MEET AUSTRALIAN WORKPLACE TRAINER
COMPETENCY STANDARDS

*THE NATIONAL TRAINING BOARD HAS NOW ENDORSED
COMPETENCY STANDARDS FOR WORKPLACE TRAINERS*

TRAINING AND DEVELOPMENT SERVICES PROVIDES A SERIES
OF WORKSHOPS FOR TRAINERS WHICH COVER ALL OF THE
WORKPLACE TRAINER COMPETENCIES


UNIT
COMPETENCY ELEMENTS
UTS WORKSHOPS
1
Identify the Need for Training
1.1 Determine if training needs exist
1.2 Identify competencies for specific jobs/roles
1.3 Identify competencies held by individuals for specific jobs/roles
1.4 Define training requirements
TRAINING NEEDS ANALYSIS
2
Design and Develop Training
2.1 Prepare training plan
2.2 Develop training program
2.3 Develop assessment methods
TRAIN THE TRAINER 2: Designing Training Programs
3
Organise Training Resources
3.1 Select internal or external training delivery
3.2 Arrange for appropriate staff
3.3 Arrange location and facilities
3.4 Arrange equipment, tools and resources
3.5 Identify and arrange external training
TRAIN THE TRAINER 4: MANAGING TRAINING
4
Deliver and Evaluate Training
4.1 Deliver training/ learning opportunities
4.2 Provide opportunities for practice
4.3 Follow up and support trainees
4.4 Evaluate training
TRAIN THE TRAINER 1: Planning & Presenting Training
TRAIN THE TRAINER 3: Training in the Workplace
5
Assess Trainees
5.1 Assess trainee competence
5.2 Review learning progress
5.3 Record assessment results
ASSESSING COMPETENCY STANDARDS
ASSESSING LEARNING
6
Promote Training
6.1 Provide training information
6.2 Disseminate training information
6.3 Publicise training benefits
6.4 Evaluate promotional activities
TRAIN THE TRAINER 1: Planning & Presenting Training
TRAIN THE TRAINER 3: Training in the Workplace
TRAINING PROGRAM DESIGN
7
Manage Training
7.1 Maintain training records
7.2 Report on training
7.3 Plan training expenditure
7.4 Procure and maintain training support equipment
7.5 Advise on trends and practices in training
7.6 Maintain training activities within enterprise & legal requirements
TRAIN THE TRAINER 4: Managing Training

RMIT & UTS August 1992

It is important to recognise the methods or technology that are being developed for institutionalising and enacting this idealised version of human capital theory into the industrial relations system. This is partly occurring through the introduction and application of 'structural efficiency'. Here career paths are being developed based on skill acquisition. Theoretically, a worker obtains the skill level required at the higher classification and providing the employer can use those skills, the worker gets the increased remuneration. If only the workplace worked that way. This view is simplistic and naive. It is

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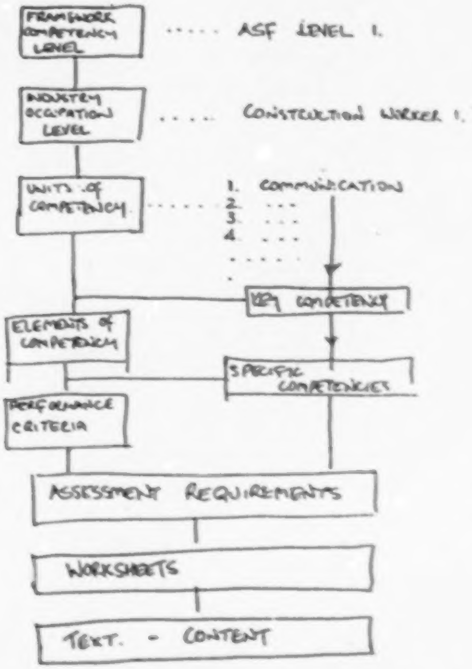
ahistorical and ignores the fact that the workplace is a site of struggle. The power relations of race, class, gender and age all impact on human capital theory to make it unbalanced. Consequently, to believe that the remedy for this situation is a matter of perfecting the technologies of training and industrial relations is a fallacy. These too, are affected by and subjected to the very same influences and relations.

Courses for work-related learning

A direct consequence in broadening the responsibility over education to tripartite arrangements has been that the consensus between these parties now becomes the constructive dynamic for curriculum. As this is very much an employers' model, this causes a dramatic shift to the Right for what is considered to be 'useful knowledge'.

Figure 3 shows the relationship between the competency standards endorsed in April 1992 covering Workplace Trainers. These are broken into 7 units of competency. Each unit is sub divided into Elements of competency across the page. The right hand column of the page relates each unit to a particular training response or workshop which in this case has been developed by University of Technology Sydney.

Figure 4 Presents the flow chart which relates the competency standards to the curriculum, and the pedagogy of the training package.


FRAMEWORK COMPETENCY LEVEL
ASF LEVEL 1.
INDUSTRY OCCUPATION LEVEL
CONSTRUCTION WORKER 1.
UNITS OF COMPETENCY
1. COMMUNICATION
2. ...
3. ...
4. ...
KEY COMPETENCY
ELEMENTS OF COMPETENCY
SPECIFIC COMPETENCIES
PERFORMANCE CRITERIA
ASSESSMENT REQUIREMENTS
WORKSHEETS
TEXT. - CONTENT

THE RELATIONSHIP BETWEEN THE BUILDING & CONSTRUCTION INDUSTRY MATERIALS TO THE NTB complete standards model of figure 2.

Each of these short courses is considered to be a module towards a more substantial program. Firstly, this shows the way that the competency standards are sub divided and how these become the basis on which corresponding training programs are developed. The second point arises from the nature of the program.

The workshops for each of the seven modules are either two or three days in length. The cost of the two day programs are $500 and for three days this becomes $750. The course, Train the Trainer 1 is considered a core module and along with any other three of the modules satisfies the requirements for the awarding of a Certificate of Training Development. This qualification is conceived in a partnership between UTS and RMIT.

This is an illustration of what is being fostered through the government rhetoric advocating the development of a training market. For $2500, and attendance at ten days worth of training courses, people can enrol, participate and gain credentials from a University, directly related to the competency standards for this occupation: presumably becoming a certificated Workplace Trainer, a qualification related to ASF level 4.

The next section in this paper discusses material drawn from the field of Adult Literacy and Basic Education. The intention is to continue to follow through the development stages of curriculum and pedagogy drawn from the model of the competency standards. This next example illustrates the relationship and derivation of training packages. Aspects of the training package will be de-constructed in an effort to gain insight into the way in which it has been designed and developed. Training packages are being presented here as a facet of the technology of training. As the training reform agenda is situated within the broader aspect of workplace reform, it is interesting to probe these as examples of curriculum and pedagogies associated with reform.

Two important questions to consider are;

(i) what type of broader reform are curriculum and pedagogies like these a part?

(ii) What type of reform will these achieve?

De-construction of the package allows us to recognise the technical design of the materials. The flow chart shows the stages in the technology for training.

A central tenet of this article is that the pathway which allows the industrial parties to convert what is done on the job into curriculum for that job constitutes a system. This system is a form of technology, a technology for curriculum. The training package goes even further, and like the self-paced mode of competency based training, is an example of a technology for training. In addition, in this model where the learning content is presented as texts to be consumed and mastered, even learning is being considered a type of technology.

Conclusion

The training packages are being designed by instructional designers and educational technologists. The parameters for these packages are set by a rationale of efficiency and control. The trainers facilitate the training process by accessing the various parts of the package. The learning programs, the texts, which in this case is the pocket sized booklet often revert to direct instruction. This is used in conjunction with worksheets for assessment. Each question on the worksheet can be directly related to, on the one hand, the specific competencies in the curriculum document and on the other to the content provided in the learning text or booklet.

Significantly, a convention governing the design of learning materials provides that no question can be asked of a student for which the answer has not been previously provided. No materials are presented as problems to be engaged with or situations to be investigated. In addition, the text is simplified as a part of the standardisation. This reduces the content to that which is considered essential to answering the assessment requirements. The texts become very simplistic and assessment requirements can border on being trivialised.

Learning is being defined as the ability to recognise the appropriate information and copy this into the appropriate spaces on the assessment sheet. These are recorded into some kind of centralised data bank the results accumulating towards recognised credentials. It is not hard to see behind the rhetoric of lifelong learning a pressure to participate in an indeterminant amount of work-related schooling.

The educators are the new operatives being deskilled by the design of the technology. The learners are the standardised product moving along the production line. Information, or content is being added on, and fitted to them as they progress from one assembly point to the next. Is the model-T Ford being replaced by—Mr. Tee?

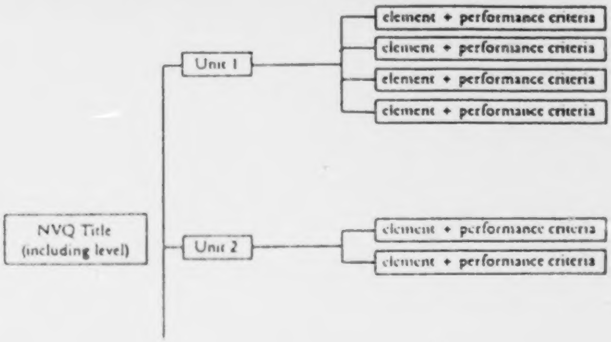
The designers of such a system remain removed from the process as they are not direct participants. They are neither required to work on, nor travel down this conveyor belt. Instead they call the shots and oversee.

Finally, that which radical educators value most, the reason why they get up each day and go to work is under direct threat. Education is a double edged sword, and a site of struggle. It holds the potential to transform power relations and it is this type of political challenge that for these educators constitutes reform.

What is the model of reform implicit in this model of curriculum development, and in these training packages?

CBT does not represent reform for working people. How can CBT even begin to raise as problematic the power relations within society or within the workplace? It is a contradiction to think that prescriptive curriculum conceived in a tripartite context is going to tackle the status quo on questions of power. To the contrary, it represents the status quo. Only a curriculum of reproduction can result from the pragmatism and consensus within this approach. We need to rethink any commitment to what is for educators and learners fast becoming, 'tripatheid'.

Note: This shows the United Kingdom's model of National Vocational Qualifications (NVQ's); this is their standardised approach to credentialing. Notice the similarity to the previous model of the NTB in figure 2. Importantly, the UK model predates the Australian application.


NVQ Title
(including level)
Unit 1
element + performance criteria
element + performance criteria
element + performance criteria
element + performance criteria
Unit 2
element + performance criteria
element + performance criteria

Jessup in Burke (1989:69)

References

Apple M.W., Teachers & Text: A Political Economy of Class and Gender Relations in Education, Routledge, New York, 1988.

Brown M., Competency Based Training: Skill Formation for the Workplace or Classroom Taylorism, Unpublished Paper Presented to the ACSA Conference, Adelaide, 1991.

Building & Construction Industry Training Board, Building & Construction Industry Training Package: Communications Level 1, Melbourne, 1992.

Burke, J.W. (ed), Competency Based Education & Training, Falmer Press, London, 1989.

DEET, NOOSR Research Paper #7: A Guide to Development of Competency Standards for Professions, AGPS, April 1992.

Pusey M., Economic Rationalism in Canberra: A Nation State Changes its Mind, Cambridge University Press, Sydney, 1991.

National Training Board, National Competency Standards: Policy Guidelines, Canberra, 1991.

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Deconstruction of training package

This industry has followed the Metals Industry model for restructuring. They have four streams, and nine levels. The classification structure consists of the generic title, Construction Worker (CW) 1—9. Industry specific classifications are bench-marked to the ASF levels though they do not necessarily share the same numeral. Hence, ASF level 3 of tradesperson or equivalent corresponds to CW 4 and in the Metals industry is denoted by the C 10 classification. However, in this instance, level 1 within the Building and Construction industries classifications is Entry level and this is similarly described through the ASF level 1.

The training package

The package consists of three parts.

1. Part A has three sections, Introduction to the package, Use of the Booklet, and Assessment competencies.
2. Part B has four sections, Notes for Trainer, Worksheets 1-10, References and Resources, and Word lists,
3. Part 3 is an information text, excellently presented as a pocket size booklet.

The Introduction states;

> Three major principles underpin the Building and Construction Level 1 communication booklet and training package.
> They are:
> 1. That for learning to occur there has to be a **connection** between the learner and what has to be learnt.
> 2. That everyone has learning **strategies** [However clumsy, inefficient, unusual or lateral they are]
> 3. That the learner must be given **control** of and the **responsibility** for their learning

These principles are typical of the intentions of most adult educators involved with work-related learning. This section of the article will look at how this material enacts these principles. The following questions are fundamental to the following discussion.

How does the package make these connections?
How does it recognise and build upon the learners own strategies?
How does it give control and responsibility to the learner?

The booklet

In reference to the accompanying booklet, the introduction notes the following skills:

However, the booklet is based on a number of generic communications skills.

- The ability to recognise and interpret signs/graphics.
- The ability to understand and respond to key instruction words, in English.
- The ability to give information orally and in writing about self.
- The ability to express idea.

The first three of these are about the worker/learner responding in some way to others. Only the fourth locates the learner actively in the construction of their milieu. A slight tension arises however from the assumptions on which it's design is based and the level of the learners at which it is being presented. Despite this criticism, the booklet contains cleverly presented worthwhile information.

The texts associated with these types of learning materials vary according to the degree to which they serve as instrumental to the assessment requirements. Because this booklet is chatty and well presented, it will have a wider use, though it generally remains instrumental.

In contrast, the learning materials associated with self-paced, trade training programs are extremely instrumental, are consequently simplistic, and most often revert to direct instruction. Significantly though, these have been the basis of, and forerunner to, the approach to training that is presently being implemented nationally.

The choice of content within the communication package is informative. No unionist is going to dispute the importance of covering information regarding safety. The topic of safety represents an intersection between the interests of workers and employers. Therefore it becomes a popular subject within the tripartite arrangements now governing curriculum development. However, it needs to be pointed out that the employers interest is partly bound up with the cost of compensation and insurance premiums as much as it is with worker safety. Investment in training associated with safety becomes a double bonus for employers.

The curriculum documentation

In the explanatory documentation of the package, a description of the competencies being covered is given. The Assessment competencies section begins with 'literacy for knowledge', a reference to the Victorian ABEC framework.

KEY COMPETENCE:	Knowledge in listing facts.
level 1	Capacity to read, write and speak listing some facts about the topic in simple sentences

SPECIFIC COMPETENCIES:-

1. Can match the colour with the shape of the four main safety signs.

(The outlines and shape of the signs are depicted and their colour designated).

2. Can give, in English, a one word/phrase, explanation of the four main safety signs.

(The outlines of the signs is repeated and labelled with acceptable examples of one word/phrase labels)

The first diagram has the caption,
FORBIDDEN / NO WAY/ DO NOT USE
the second
HAZARD / BE CAREFUL / DANGER
the third
PROTECTION / MY SAFETY / YOUR SAFETY
the fourth
YOUR HEALTH / SAFETY EQUIPMENT /
FIRST AID / MY HEALTH

3. Can copy out these key words.
   FORBIDDEN
   HAZARD
   PROTECTION
   HEALTH

4. Can recognise out of context, these key site words.
   DANGER
   ACCESS
   KEEP CLEAR
   NO ENTRY
   THIS WAY
   EXIT
   SAFETY
   SITE OFFICE

Extracts from worksheets 1, 3 & 4 are set out below.

Worksheet 1. (EXTRACT ONLY)

Colour in the shapes of the appropriate safety signs and fill in the blanks.

(The outline diagrams of each sign is presented. Each has a corresponding label with letters missing to be filled in.)

FOR_____N

HA____

PR________

HE____

Worksheet 3. (EXTRACT ONLY)

FILL IN THE BLANKS

S_TE
OFF_CE
EX_T
D_NG_R

K__P
CL__R
LI_T
N_

SITE
OFFICE
LIFT
CLEAR
KEEP
DANGER
EXIT
NO

Worksheet 4. (EXTRACT ONLY)

COPY OUT THESE WORDS

DANGER ------------------
EXIT ------------------
NO ENTRY ------------------
THIS WAY ------------------

It is hard to imagine the way in which these materials will fulfil the espoused intentions stated in the opening principles.

These materials show some confused notion that Building workers are going to take responsibility and control for their learning by using coloured pencils on diagrams of safety signs.

35

VOCATIONAL EDUCATION AND TRAINING CURRICULUM POLICY: A DISCUSSION OF ITS PHILOSOPHICAL ASSUMPTIONS

ANNE WINNING

A. Winning, 'Vocational education and training curriculum policy: A discussion of its philosophical assumptions', *Australian and New Zealand Journal of Vocational Education Research*, vol.1, no.1, 1993, pp.105–13.

This paper examines the philosophical assumptions which underpin the current trends in curriculum policy within the vocational education and training sector. This paper gives a brief outline of three major paradigms, or conceptual lenses, through which curriculum may be viewed. It then discloses the ways in which the current policy, in particular its strategy of CBT, falls within the paradigm which has been dominant in Western culture for the twentieth century. A critique is given of the assumptions which underpin the policy, before some positive potentials of CBT are discussed.

The intention of this paper is to expose some of the taken-for-granted, philosophical assumptions which underpin current discussions of curriculum policy for the vocational education and training (VET) sector. Even where the philosophical grounding of actions are not examined, they nevertheless exist. Curriculum movements are not exempt from such philosophical assumptions, however they are sometimes not made explicit, despite the potential power and influence educational curricula have on the welfare of society.

In this paper I first explain the relevance of asking essential curriculum questions, before going on to outline three fundamental paradigms, or conceptual frameworks through which we may review the world. I then proceed to explicate the dominant Western paradigm of the twentieth century and its characteristics. This is followed by identifying where the current VET policy fits within the paradigmatic frameworks. The section includes criticisms of the current trends. I then go on to a discussion of some possibilities inherent in the present curriculum policy. The paper concludes with an answer to the three fundamental questions with which it began and thus discloses the philosophical assumptions and paradigmatic framework within which current VET curriculum policy is being developed.

The three most basic curriculum questions are; What knowledge is most worthwhile, why is it worthwhile and how is it acquired or created? (Schubert 1986, p.1). The answers one gives to these questions reflect certain philosophical assumptions and particular conceptual frameworks. They also reflect what one assumes to be the possibilities of the type of curriculum being advocated. By consciously questioning what knowledge is considered worthwhile, one can move beyond taking for granted the existing social dictates:

> Just as a bridge is only as strong as its underlying support, curriculum proposals and practices are only as strong as the assumptions upon which they rest. Merely because a practice or proposal seems attractive or is in vogue is not sufficient reason to accept and promote it. (Schubert 1986, p. 412-413)

One's philosophical assumptions are informed by examination of the paradigm through which one operates. When considering curriculum matters, 'A paradigm is a conceptual lens through which curriculum problems are perceived (Schubert 1986, p.2). The type of curriculum, its development, implementation and evaluation are dependent on a particular paradigmatic view of the world.

A curriculum orientation would be dependent upon one or more of an array of orientations, all of which can be traced back to three, different and conflicting paradigms (Habermas 1972). First, there is the *empirical-analytic* paradigm in which explanatory and technical knowledge is deemed of primary significance. This orientation is familiar in its guise of science. Second, there is the *situational interpretive* paradigm which places primacy on the meaning which people give to a situation. This is more familiar to us in the form of narratives and stories. Third, there is the *critical* paradigm whereby people are concerned with critical understanding of fundamental interests, values, assumptions and implications for human and social action. This orientation would be most familiar in the form of investigative exposés which examine people's motives for action.

The empirical-analytic paradigm has been the dominant orientation for inquiry and problem solving for this century. It has infiltrated all aspects of society to the extent that it has been the dominant mode of Western thought. In this paradigm, the main interest is in technical control resulting in efficiency and accountability. It takes the stance that reality is objective and that people and world are separate, that all knowledge, should be 'objectively' proven 'facts' and that for anything to be considered knowledge, it must be explainable in a causal way. Importance is placed on ways of knowing which can be quantified, thus other ways of knowing which cannot legitimately be quantified are not deemed worthwhile. In much the same way as it is impossible to input data into a computer program which has not been set up to receive that data; knowledge which is unquantifiable cannot be included within the empirical-analytic paradigm. It is based on a view of the world which holds the belief that humankind acts *on* the world; that an objectified reality exists *out there*.

The situational-interpretive paradigm emphasises two-way communication or dialogue. It recognises that people give personal meanings to experience. Thus, events can be interpreted in different ways. The main interest of this paradigm is experiential understanding. It considers that people cannot be separated from their world; meaning grows from the way people interact and experience the world and others. It is based on the view that people act *in* the world; reality is not some objective existence that has a life of its own beyond that given it by our own construction and understanding.

The critical paradigm is concerned with uncovering the 'hidden agenda' of underlying assumptions and values in a given approach to a text, situation or event. It comes from a belief that people act *in* the world, but that world can be made explicit through reflection *on* taken-for-granted social dictates. Its interest is in improving the human condition through reflective thinking which relates person to self and world:

> Critical reflection leads to an understanding of what is beyond; it is oriented towards making the unconscious conscious. Such reflective activity allows liberation from the unconsciously held assumptions and intentions that lie hidden. (Aoki 1985, p. 18)

The paradigm for this century

The dominant paradigm of Western culture for the twentieth century has been the empirical-analytic paradigm. This has translated to a dominance of descriptive curriculum theories within educational spheres. The function of such theories is to define, describe, predict, and direct.

The trend toward increasing specification and precision in curriculum design began in the 1920's with the work of Bobbit, Thorndike and Snedden, people who are known as social behaviourists. In 1921, David Snedden claimed that 'curricular objectives should be developed by analysing the needs of adult life in physical, civic, cultural, and vocational areas' (Schubert 1986, p. 76).

The proponents of such descriptive curriculum development adhere to measurement, precision, efficiency, and mechanical technique. Among their opponents in the curriculum debate are experientialists, the most famous of these advocates being John Dewey. Experientialists focus on learner-centred, progressive, democratic, problem-solving orientations. The monumental difference in perspective continues to plague the curriculum field today. The difference is grounded in opposing notions of value attributed to each of three sources of curriculum emphasis, that is the learner, society and subject matter. Although Dewey suggested that the three should be interdependent, procedures that evolved suggested that the three should be interdependent, procedures that evolved tended to emphasise one or the other. The theorists who advocate that curriculum emphases should be on the needs of society (as determined by a dominant group within society) are those who prescribe to the perspective and paradigm of social behaviourists.

From the 1920s, and up until today the dominant theme in education has been one of instrumental rationality; where the emphasis is on technique, control and measurement. The emphasis is on *how* rather than *why*, an attitude which results in little thought being given to the consequences of the learned behaviour and methods (Magnusson and Osborne 1990, p. 6). Instrumental rationality has been described as:

> the cast of thought which seeks to dominate others, which assumes its own rightness to do so, and which exercises its power to serve its own interests. (Gibson 1986, p. 8)

I will now proceed to show that the current trend of curriculum policy within the VET system sits within descriptive curriculum theory, the dominant theme of which is instrumental rationality. Curriculum policy is presently being driven by economic rationalism, through a framework concomitant with the definition of the empirical-analytic paradigm.

Where the current trend fits

The current trend of curriculum policy within the VET system is being driven by economic rationalism. A disturbing aspect of the agenda is its tendency to reify the economy. There is no room left to consider the situation from a different construction or competing philosophy (Porter, Rizvi, Knight and Lingard 1992, p. 53). Economic rationalism demands a flexible and skilled workforce driven by industry requirements. It is founded on the belief that success in today's global economy will be determined by a 'nation's ability to develop competitive advantage in advanced industries and industry segments' (Wood 1992). Despite the fact that this economic theory has been contested (Yetton, Craig, Davis and Hilmer 1992; Carrol 1992), the flurry of activity within the VET system is associated with responding to the needs of our society as they are determined within the perspectives of economic rationalism. The purpose of all the activity is to produce a skilled workforce, a workforce which will be the 'doers' of the new product and process technologies.

Theorists who sound caution concerning the interests of the economic rationalists point out that the rhetoric has been promulgated in Australia by a highly influential, wealthy group who largely represent corporate mining interests (Carrol 1992). Further, the economic rationalists have stimulated the move to a national system of education which forms part of the national government's metapolicy of corporate federalism. The main concern of corporate federalism is to ensure that all systems work 'in the national interest'; the national interest at the present time being the economy (Bartlett, Knight and Lingard 1991, p. 92). Little attention is being paid the increasing diversity in society, that is the emerging 'postmodern condition' (Lyotard 1984) which is resulting in a breakdown in belief in all-encompassing, unifying societal quests.

The economic rationalists and their supporters have as their major concern 'faltering productivity (and profitability) in the labour force' (Magnusson and Osborne 1990, p. 7). They have identified ineffective education and training systems as the culprits in the dearth of a skilled workforce and have consequently called for structures and procedures which would aim to solve the unemployment problem (so the public is led to believe), while also, (probably more effectively), serving to supply corporate employers with a larger pool of skilled people from which to choose. Consequently,

> The demands for educational reform on both a populist and political front could be summarised in four terms: relevance, accessibility, flexibility, and accountability. It was at this time and with the purpose of meeting these demands that Competency Based Education gained popularity. (Magnusson and Osborne 1990, p. 9)

The economic rationalists' call for award structuring, flexible training programs and a skilled workforce have led to much activity in the curriculum domain of the VET system. However, present trends indicate that the majority of investment in training is concentrated on professional and managerial employees. Additionally, the smaller amounts spent on the average workers tend to be more 'focussed on specific skills necessary to do the next job, rather than on the basic background skills that make it possible to absorb new technologies' (Thurow 1992, p.54). Further, the reforms are tied to workplace competencies, not life skills. Thus, the reforms are linked to a technical, instrumental agenda rather than a humanistic one.

Whether in fact the increasing numbers of skilled people in the workforce will lead to a better manufacturing sector within Australia has been questioned:

> The introduction of competency-based training in Australia appears to be taking place in a significant vacuum in economic direction. Coupled with the profound structural changes under way within the economy, it would seem that the current fundamental changes to Australia's vocational education and training system may prove a wasted exercise if it cannot support the direction and type of development that will ultimately underpin the country's future. (Butterworth 1992, p.22)

The major strategy of curriculum which aims to create a skilled workforce is that of competency-based training (CBT). I will now go on to show where CBT fits in curriculum theory, serving to explicate the philosophical foundations of the theory and the paradigm through which it is constructed.

Competency-based training is an amalgamation of some of the leading natural science-based theories of learning. Thus, it comes from an empirical-analytic paradigm. It contains elements of programmed instruction, specified behavioural objectives, hierarchical beliefs about knowledge acquisition and social behaviourist assumptions about learning techniques. It has been adopted so enthusiastically because at a surface level it appears to be radical reform. This however is not the case, since 'the changes it makes are at the personal and institutional level; the structural level is reinforced, rather than reformed' (Magnusson and Osborne 1990, p. 10). Nevertheless, it meets the criteria presently required of supposed reform agendas, namely accountability, relevance (to the demands of the market), accessibility, and flexibility. Its greatest strength, however lies in its political saleability in that it reinforces existing status quo rather than promotes real change. It does this because the content of a program is determined by a panel of 'experts' in the field and monitored by 'experts' who happen usually to also be employers. By controlling the content of educational programs, they are in a position to ensure that the labour market is supplied with people trained in the philosophies and techniques of a given time in a given market.

A further criticism of CBT is that in its positivistic stance it overlooks a dimension of teaching, and equates teaching with the transfer of discrete, inter-related skills or competences. It de-professionalises teaching through the Taylorized, commodity production version of transfer of skills which it promotes (Broudy 1990, p. 3). Again, the paradigm from which such a view of teaching and curriculum comes is the empirical-analytic paradigm with its insistence on discrete measurable skills as opposed to a recognition of more holistic, complex, context-bound interactions—interactions which are after all, the reality of teaching. CBT ignores the experiential dimension of understanding education, the dimension which belongs to the situational-interpretive paradigm. It forgets, or de-values, the aspect of teaching which requires teachers to know more than what could possibly be stated in role prescriptions. It ignores the need for teachers to go beyond the prescriptions of discrete learning outcomes in order to teach a real person in a real, perhaps unpredicted situation.

CBT as a rationalization has been criticised as a 'process whereby social behaviour is brought within the sanctionable jurisdiction of bureaucratically mandated rules' (Hilbert 1982, p. 392). Rather than promote social change it ensures that existing positions of power remain, and that access to 'education and training' is in reality merely access to skills which ensure that the existing social structures remain.

Other criticisms of CBT include: the use of existing industry standards as a standard to write into curriculum is questionable since Australian industry has failed to excel; CBT tends to entrench current practice rather than promote new, creative ways of thinking; there is a lack of research which demonstrably shows its benefits; CBT has not been proven effective in teaching for the successful transfer of knowledge; and it pays scant attention to the teaching of values and/or the appreciation of culture (Butterworth 1992). Additionally, it takes no heed of recent theories of learning and teaching. For example, recent developments in cognitive psychology indicate that learning skills is a complex task which is not always characterised by the need for mastery of basic skills before complex ones can be learned (Porter, Rizvi, Knight and Lingard 1992, p. 55).

A further feature of the current VET curriculum policy is the convergence of vocational and general education. Although there are potential gains in terms of humanistic education within this move, the imperative driving the move is that of people other than educationalists. Due to the input from employers, there is the likelihood that major emphases will be placed on competencies deemed appropriate for current labour market requirements. Thus, the move serves to accommodate the human capital assumptions of the economic rationalist philosophy.

In summary, the dominant philosophical position and paradigmatic framework in which emerging VET curriculum policy fits is that of instrumental rationalism viewed through an empirical-analytical paradigm. The curriculum policy is driven by economic rationalism. The major goal of economic rationalism is to ensure that human capital contributes to national economic goals. Any notions of individual or community well-being come only in terms of the economy. The curriculum strategy of CBT is driven by a belief in accountability, measurement and external control. Supporters of these premises view the world in terms of positivistic science which believes that everything can be understood and examined if it is made into smaller and smaller discrete pieces which can be measured. This view of the world pays scant attention to the understanding of the human world that is portrayed through great literature or art. Because it is impossible to quantify, it does not come into consideration. Positivistic science values quantitative methods and quantitative understandings. Positivistic science spawned the social behaviourists who are the 'master-minders' of descriptive curriculum theories and methods. CBT is not the first attempt to control education through tightly prescribed behavioural objectives. What began in the 1920's was re-introduced in the 1960's when behavioural objectives became fashionable in response to America's shame over *Sputnik*.

The possibilities inherent in current trends

Despite the above criticisms, there are some possibilities inherent in CBT for a more humanistic approach toward education. However, the word *possibilities* is value laden. One form of curriculum theorizing may see possibilities in a curriculum policy which is viewed by other theorizers as ill-conceived. What I hope to show is that there are aspects within the current policy trends which have the potential for reforms which would be praised from paradigmatic frameworks other than the empirical-analytic paradigm within which the policy belongs.

First, it allows access to higher education for that sector of the community to which it was previously virtually unobtainable. The flexible pathways to various levels within careers allows someone to more easily advance later in her/his career. Thus, there is less chance of being excluded from life options at an early age.

Second, there is the potential for real social reform taking place when the current era of economic depression has passed. At the moment, the emphasis is on acquiring survival skills in order to secure and maintain employment. Perhaps once those basic needs are met, more global concerns will take precedence and the nature of the skills to be developed will change. Because CBT as it is presently structured allows decisions of program content to move away from being primarily and solely in the hands of bureaucrats, if the structure remains, there is the potential for people at different levels of the community to have input.

Third, although CBT tends to be product oriented, it 'allows for increased variability of individual process; the individual's experience of education takes on a more significant role' (Magnusson and Osborne, 1990, p. 11).

A further commendable feature of the current VET curriculum policy is its potential for expanding the interdisciplinary character of curriculum. The more inclusive nature of the curriculum development committees, the flexible structures, and the recognition of prior learning, which is one of the principles of the curriculum policy, mean that there is the possibility of unique configurations of knowledge from many disciplines, professions and trade backgrounds. This situation allows for increased dialogue between people with different expertise and interests. Thus, there is the potential for a wider input on fundamental issues regarding what contributes to public growth.

This possibility, however, will only be realised when people other than those representing vested interests of an economic nature are included. The degrees to which CBT becomes a technology of enslavement or liberation (Magnusson and Osborne 1990, p. 12) depends on the extent to which representatives of the community can have a say once the current overriding concerns of the economy have been solved.

Conclusion

I began this paper with three fundamental questions of curriculum. I will now return to those questions and answer them according to the explication of the philosophies and paradigms which underpin current VET policy.

The answer to the question, What knowledge is of most worth appears to be: That knowledge which pertains to increased productivity. In answer to the question, Why is that knowledge worthwhile, it seems that the most obvious answer is that it is for the sake of the national interest; the national interest being the economy. The third question dealt with how the knowledge should be acquired. The current policy advocates a transmission of knowledge which is very much in keeping with the philosophies of instrumental rationality; importance being placed on performance on discrete, measurable skills.

Thus, education is seen primarily as a contribution to productivity, not as a part of the general personal growth of the individual nor the general progress of humankind. Although the process of curriculum development offers some potential for a more humanistic response, there remains the danger that young people will be treated as human capital and that institutions of education are perceived simply as extensions of the corporate world.

References

Aoki, T 1985, *Curriculum in a New Key*, Department of Secondary Education Occasional Papers Series 2, University of Alberta.

Bartlett, L, Knight, J, & Lingard, B 1991, Corporate federalism and the reform of teacher education in Australia, *Journal of Education Policy*, 6 (1), 91-95.

Broudy, H S 1990, Whys and wherefores of competency based teaching, *Journal of Classroom Interaction*, 18 (2), 2-6.

Butterworth, P 1992, Is CBT the answer? *Australian Training Review*, 4, September/October/November.

Carrol, J 1992, 7:30 Report, ABC Television, September.

Gibson, R 1986, *Critical theory and education*, Hodder & Stoughton.

Habermas, J 1972, *Knowledge and human interest*, Beacon Press, Boston.

Hilbert, R A 1982, Competency-based teacher education versus the real world: some natural limitations to bureaucratic reform, *Urban Education*, 16(4), 379-398.

Lyotard, J 1984, The postmodern condition: a report on knowledge, University of Minnesota Press, Minneapolis.

Magnusson, K, & Osborne, J 1990, The rise of competency-based education: a deconstructionist analysis, *The Journal of Educational Thought*, 24 (1), 5-13.

Porter, P, Rizvi, F, Knight, J & Lingard, B 1992, Competencies for a clever country: building a house of cards? *Unicorn*, 18(3), 50-58.

Shubert, W H 1986, *Curriculum: Perspective, paradigm and possibility*, Macmillan Publishing Company, New York.

Thurow, L 1992, *Head to head: The coming economic battle among Japan, Europe and America*, William Morrow & Co, Inc, New York.

Wood, A, Economy poised to prove guru of global competition wrong, *The Australian*, 14 September, 1992.

Yetton, P. Craig, J, Davis, J & Hilmer, F 1992, Are diamonds a girl's best friend? A Critique of Porter's theory of National Competition as Applied to Canada, New Zealand and Australia, *Australian Journal of Management*, 17, (1), 89-119.

SECTION 7

COMPETENCY-BASED TRAINING IN PRACTICE

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SKILLS, SELF-PACED LEARNING AND WORK: MOTOR TRADE TRAINING

TREVOR DAVISON AND RICHARD SMITH

T. Davison & R. Smith, 'Skills, self-paced learning and work: Motor trade training', *Unicorn*, vol.14, no.2, 1988, pp.77–84.

This paper analyses the ways in which the *Apprentice Motor Vehicle Mechanic Syllabus* presents to its readers a vision of curriculum knowledge, pedagogy and evaluation. It is argued that the *discourse* of the syllabus creates links between course-work and the work-place which appear to be 'real' but are instead images. In turn, such images re-define what counts as knowledge, teaching and evaluation so that the apparent objectives of the syllabus are not easily attainable in their institutional settings. The syllabus, it is concluded, is structured around principles that identify a new conception of education which is in tune with more general patterns of social change in the 1980s.

Introduction

It is an interesting observation on contemporary educational policy that skills training has taken on a special significance at a time when jobs for the young are in short supply. Indeed, skills training is placed at the forefront of initiatives to recover jobs. Thus the ASTEC Report (1987, 4) proposes that:

> ... upgrading the skills of the workforce *will act to reduce the level of unemployment* by creating more competitive industries, thereby generating greater industrial activity and more employment opportunities (emphasis added).

The report (p5) goes on to say that skill formation is akin to a less narrow definition of education namely an 'holistic concept of continuing personal development' and that productivity could be enhanced by providing workers with an understanding of, and a 'considerable degree of control over', their work. Flexible self-instructional materials which enable an individualised pacing of learning are cited as an innovative mode of teaching that facilitates these ends (ASTEC 1987, 31).

This paper is concerned with such a mode of teaching, and a skill-directed curriculum, the *Apprentice Motor Vehicle Mechanic Syllabus*: General Stream Level 1 (TAFE 1985), hereafter MVMS. We briefly sketch what MVMS intends in its *educational* rhetoric before discussing its theory of instruction, conceptions of knowledge and evaluation. The paper concludes with the identification of some general principles of vocational education.

The MVMS

The MVMS Introduction sets out its mission statement. Level 1 is the 'core course' designed to develop 'basic trade skills', provides the 'broad foundation of common knowledge' thought to be necessary before attempting Levels 2 and 3. In addition to developing 'broad-based skills', the MVMS syllabus aims first to produce a self-confident, self-supportive person who can cope with future trends in technology and with work situations inherent in a changing society (vii). Second, it claims to bring college-based and employment-based training to a common standpoint (xii).

The teaching methodology is that of self-paced individualised learning and competency-based assessment. Here the document proposes that assessment should be based on a student's ability to perform *as required* (vii). The time for the various levels of the syllabus are specified with Level 1 requiring 'approximately 300 hours' (viii). To this extent, MVMS attempts to address general principles and broad transferable skills as well as the specific needs of particular firms and types of equipment (ASTEC 1987, 26). The syllabus appears to be premised on the assumption that there is a connection between its practices and trade work so that the boundary between college preparation and work is weakened. As eloquently put by Arthur Brennan, a Victorian Training Commission representative, 'The Commission decides and TAFE Delivers!' In Apple's (1986) terms, MVMS is an exemplar of the tendency to make the goals of education those of industry and business.

The discourse of MVMS

We address the syllabus from the point of view of its own discourse, or the ways in which MVMS defines its content and its procedures for transmitting content. The content is derived from the technical disciplines that make up automotive engineering. Further, MVMS specifies the categories of skills to be emphasised, how and where they will be acquired, and how they will be evaluated. This knowledge is derived from a psychological theory base. A corollary of the 'what' and 'how' provisions is that a vision of the motor tradesperson to be produced is constructed in the document. There are many potential slippages and contradictions between the official discourse of MVMS, pedagogical outcomes and the 'world of work'. The vision of the relationship between the institution and work, necessary skill and knowledge, and its means of reproduction in student behaviours in MVMS, is imaginary (Bernstein 1987), a function of its own constructs (Moore 1987, 233).

MVMS can then be seen not as reflection of a 'real' world of work but as a kind of discourse that recontextualises the technical and psychological theory that temporarily formed its raw materials and were used in its production. The syllabus can be thought of, and acts as, a vehicle for relocating that product into pedagogical practice (Bernstein 1986) so that it can be reproduced with student motor-mechanics. The importance of this double transformation is that MVMS creates and legitimates *particular* kinds of 'talk' about motor mechanic skill training, teaching procedures and organisational practices. For trade teachers who are hired to teach it, MVMS positions them within its own frameworks and in important ways, establishes limits about what is possible or 'thinkable' in and about motor tradesperson preparation. We now turn to a more substantive discussion of these propositions.

Theory of instruction

MVMS is replete with terms such as 'entry and terminal behaviour' (viii), 'performance objective', 'test criterion', and 'terminal objective' (ix). These suggest that the theory of instruction of the document is largely behaviourist. The work of Bloom on educational objectives (Garrison and Magoon 1972, 307-8), Gagne on learning sets and tasks analysis (Garrison and Magoon 1972, 167) and some salient issues from Piaget's developmental psychology (see Henriques *et al.* 1984, 170), are integrated so that the syllabus is a *bricolage*, or collection of bits and pieces, but nevertheless provides a specific view of how apprentices should, or do learn.

The behaviourist bent has its own agenda. The individual learner is the social unit of evaluation, but individuals are depicted as owners of their person and capacities (Moore 1987, 231). Individual differences are acknowledged in a methodological manner so that differences between students are expected in the graded performances of syllabus material (Bernstein 1986). At the same time, MVMS assumes the existence of general competencies within learners that are universal across social groups and cultural boundaries. It is thought to be relevant for motor trade training *per se*, and is indeed used in settings like Papua New Guinea. This assumption has important pedagogical implications, even within Australian national boundaries.

MVMS is built upon a very specific theory of learning, a self-paced theory (viii). For some, like Papua New Guineans, this learning style may bear no relationship to their lifestyle. Thus, a critical practitioner must ask how the strictures of this particular view of the way people learn affects the pedagogy of trade curriculum across various settings. This encouragement by teachers of different learning styles amongst their apprentices would seem to be a counter-MVMS move.

As part of this individualised learning approach the syllabus also seeks to 'assist the student effectively to reach information' and 'develop the competent use of manufacturer's service information' by 'ensuring that the student, for whom the syllabus has been written, has full access to its content' (vii). It is obvious then that individualised learning in this context is to rely heavily on the use of prose; both narrative and technical. In fact, developing research skills and interacting with educational materials rather than people is a dominant aspect of the hidden curriculum of this and similar learning styles.

Apprentices in most trades and within most countries are increasingly being asked to learn from reading increasing amounts of theoretical, trade-related knowledge (Beasley 1983).

Yet nowhere in this syllabus is there a mention of how apprentices are to acquire these information gathering techniques. If apprentices have some measure of difficulty with the English language and technical prose in Australian contexts, then apprentices in Papua New Guinea are more disadvantaged. Such an emphasis on, and manipulation of, technical literature and associated learning materials make a mockery of the claim that 'the underlying thrust of all the Motor Mechanic apprentice syllabus documents is to promote a genuine concern for the learning of each individual student' (vi & vii). To reiterate, the adoption of this syllabus engenders a particular form of learning. There is little emphasis on social learning. The need to interact with other apprentices and teachers is reduced, even though many tasks within workshops require such interaction. While many teachers do not agree with self-paced learning styles *in toto*, and some apprentices are definitely disadvantaged by such pedagogy, it is the associated resources which continually direct them to this form of pedagogy. 'The apparatuses themselves provide a norm, a standard of good and possible pedagogy' (Henriques *et al.* 1984, 162). One wonders then how some apprentices will become 'self-confident and self-supportive' (vii) if this form of pedagogy is not appropriate to their cultural background and needs.

The increased sense of self-responsibility for success and failure may well be transferred to the workforce where many of these future tradespeople will find themselves retrenched or are reduced to finding employment in industries where the work falls outside more accepted understandings of a 'trade'. The Papua New Guinea context is particularly susceptible to such eventualities.

As part of this same pedagogic process the teacher will become more of a learning manager than an active contributor to apprentice learning. While this appears to facilitate active involvement and learning on the part of apprentices, it may be understood also as an ideological element of a deskilling process. That is, both in Papua New Guinea and Australia, the teacher is to become more involved with the development of learning modules and supporting resources. They also have an input into evaluation of the effectiveness of these. Theoretically, such modules are developed so that anyone should be able to deliver them and anyone could learn from them. The vision is one of the tradesperson who can carry out a job without recourse to interaction with others, and is dependent upon technology and related instructional procedures. This isolationist and fragmented asocial mode of work, which is probably an inaccurate portrayal of trade-work, is transferred to the classroom and transformed into a pedagogical relationship.

Moreover, while MVMS states that it is built on the ideals of 'self-responsibility', 'self-paced learning' and 'competency-based assessment', when it comes to evaluation, the outcome is determined by some significant other. We return to this issue later.

MVMS and knowledge

The MVMS Course Outline has a direct effect on that to be learned and that which students would like to learn. Many apprentices in Australia, the United Kingdom or Papua New Guinea, have strong views about what they want to learn. Within the trade program, different elements of the course generate different levels of interest. Yet students find that their interest is externally controlled by the objectives they have to achieve. Teaches sometimes have the flexibility to 'teach' beyond the objectives thus maintaining student interest, yet the structure of the syllabus is designed around the stated self-paced learning style (viii). This individualised approach has a tendency to restrict both the teacher's input to learning and the apprentices' desire to go beyond specific objective requirements. Therefore, apprentices are directed to learn only some things and in a manner dictated by the syllabus, and Course Outline in particular.

The learning and practice of practical skills is a key exemplar of this structure. It is readily agreed by many TAFE teachers that apprentices have a burning desire to do major practical tasks within their respective places of employment and education/training as soon as possible. Young apprentice motor mechanics long for the day when they can overhaul engines and transmissions, perform tune-ups and other more involved tasks. Nevertheless, this syllabus effectively restricts their experience of different jobs by specifying very *specific skills* to be practised in *each level*. There are many examples throughout the syllabus where students are thus restricted to specific tasks like 'removing and replacing' components (*e.g.* 15, 20, 23).

If teachers have some flexibility in the cognitive or theoretical areas of these or other syllabuses, then the same cannot be said for practical tasks. Where an institution is organised and equipped for the aims and methods of this syllabus then there is little room for a teacher to deviate from the guidelines. If Level 1 calls for 'remove and replace' then this is the level of psycho-motor skills that students will practice.

One of the reasons for such pedagogic organisation is the belief constructed in the MVMS syllabus that there is a body of 'basic trade skills that enhance the student's opportunity to participate in productive and interesting tasks in the workshop' (vii). The claim is that apprentices need plenty of experience in 'identification, function, remove and replace' etc. before they can attempt any 'higher level' knowledge and skills, such as diagnosis and repair, thus assuming a hierarchy of necessary knowledge. It is debatable whether there exists a set of skills which are basic to the motor trade beyond those constructed in the MVMS discourse. The motor vehicle trade, like many others, is continually losing specific skills which were once thought to be basic components of it. Filing, metal scraping and other similar hand-skills have been superceded in the era of mass production and with the increasing utilisation of high technology in vehicle manufacture and repair. Furthermore, apprentices and employers differ in their views of what constitutes 'productive and interesting tasks'. Employers are generally interested in those tasks an apprentice is able to do which are 'productive' in an accountant's sense rather than with those which are intrinsically rewarding. The need to make the apprentice productive is therefore more educationally significant in a pragmatic sense than the provision of interesting tasks and experiences. In contrast, once accultured to the role of motor mechanic, apprentices invariably have a different idea of the type of work which provides them with interesting experiences.

MVMS: Model of yesteryear

It seems that contrary to the rhetoric of MVMS, the syllabus is more concerned with apprentices acquiring specific skills as soon as possible rather than with understanding their trade in more holistic frameworks. Increased TAFE involvement in apprenticeship training has grown alongside a corresponding decrease in training input by industry into the same process. Alex McKenna (1978, 25) reflects the views of many concerned teachers and administrators:

> Due to the specialization and subcontracting of many employers, the range of skills that are being taught 'on the job' is very limited ... The future for the apprentice is very grim unless employers can meet the need for 'on the job' training, the result is that technical colleges are forced to fill the practical training drought and further strain resources.

This shift in emphasis of who is responsible for apprenticeships is evidenced in MVMS's model of how people learn, what they will learn, where such learning should take place and who shall be responsible for it. The knowledge within the MVMS is presented in the form that Bernstein (1977, 90-3) refers to as a 'collection' code. The imaginary vehicle is broken down into distinct subject areas: engines, transmissions, brakes, etc. Rather than focusing on common principles of theory and/or engineering, each module is treated as a specific unit. Each module is a complete learning unit in itself. There is little cross-referencing between these areas. This has important ramifications for both the apprentice and employer. Apprentices are set the task of achieving particular skills and levels of understanding dependent upon their learning 'pace' and within specific guidelines. Particular abilities, or the lack of them, are therefore more easily identified. This information can then be used to ensure that apprentices become more productive in the workforce at an earlier age in their apprenticeship. The kind of work they are given within their daily working-life can mirror their present stage of development at college, thus creating an efficient member of a company sooner than apprentices undertaking a more integrated form of learning. But the collection code of the MVMS can also be seen as another factor in the de-skilling of the motor trade, at least at the sub-tertiary levels. Braverman (1974) argues that employers attempt to lower costs and to impose strict control over the work process. Ideally, for these ends, jobs are fragmented into components so that workers become expert in some but not all the components. In turn, such fragmentation is a condition for a greater control over what each worker has to offer. Such is evident in the collapse of the traditional apprenticeship system and the increase in specialist business such as wheel alignment, brake repair, engine tune-ups and so on.

The adoption by TAFE of syllabuses like MVMS leaves open the possibility of a greater control over the workforce, rather than an upgrading of skills. For example, in the United Kingdom traditional motor vehicle apprenticeships are being phased out. To become a tradesperson now involves achieving a certain number of trade modules similar in format to MVMS. Entry is open to any age group or sex and participants can opt out with any number of modules: a qualification through the 'brakes' module for instance enables a person to be employed in a brake repair workshop. Alternatively, a person may acquire all the modules on offer to gain a trade credential. The principle of 'choice' in this respect is one of the potential deskilling by the fragmentation of knowledge and skills (Rumburger 1987).

Assessment

Self-paced learning is built upon a seemingly humanist foundation which includes the importance of, and right to, self-assessment. Within this syllabus it is true that the standards of assessment are specifically tied to workshop manuals, particular text books and related literature. The criteria are clear, but ultimately it is the interpretation of such by those significant *others* which is the final arbiter of objective achievement. A person in authority and removed from the apprentice body has the final word in each individual's assessment. This is mirrored in the workshop situation where tradespeople can work alone with all the required resources on-hand to complete a repair, yet still be answerable for time-keeping, standards, etc. to another in authority (*e.g.* foreman).

Some colleges within Victoria have attempted self-assessment in the more cognitive learning areas and the results have revealed serious discrepancies between the apprentices' understanding and use of language (both oral and literary) and those needed to comprehend the assessment standards of the literature. This has also had some effect in practical areas as many apprentices are unable to fully decipher the job instructions from the diverse styles of workshop manuals within the trade. Thus, trade teachers are sometimes hesitant to allow apprentices full responsibility for the assessment of their own work.

This reluctance on the part of teachers and administrators has not been officially recognised. Teachers have raised serious doubts as to whether the apprentices involved in such learning methods actually 'learn' what they set out to achieve. Beasley (1983, 46) for instance points to a major problem in modular learning:

> … it is not unfair to say that with the modular system of apprentice training it is quite possible for an apprentice to simply copy information from a technical manual into the blank space provided in the module without understanding what he/she just 'read'.

Beasley's remarks underscore the importance of the teacher in creating situations in which what the apprentice learns in a module, such as the incorporation of a skill or explanation of theory using another medium, is transferred to another situation. This reapplication of that learned is monitored by the teacher. The teacher can also provide a wide range of assessment 'tools' to ensure that the apprentice has a greater opportunity of comprehending that to be learned rather than just regurgitating procedural knowledge.

In the practice and assessment of practical skills the same phenomena often occurs. Apprentices can often perform a skill to a specific standard yet have no idea of what they are doing, or why. If the interest in individualised learning is to be personified by: 'I hear and I forget, I see and I remember, I do and I understand' (Henriques *et al.* 1984, 155), then within trade-oriented self-paced, self-responsible learning there is plenty of easily measurable 'doing'. In contrast, it is much more difficult to ascertain more complex levels of understanding.

Even though the organisation and apparatuses of modular, self-paced learning determines how that learning should take place and thus reduces the teacher's contribution to the pedagogical relationship, there is still a dominant role they are forced to play: that of assessor. 'Passed' or 'Not Completed' (viii) are the descriptive terms used in MVMS assessment guidelines yet completing modules beyond the suggested time (training time, viii) is often used as a source of negative feedback to employers about apprentices by teachers. Some TAFE colleges which utilise this form of learning do not provide for those who fail to complete the modules within the suggested time frames. Ultimately, the apprentices are allowed only 960 hours (viii) of college attendance to achieve all required within the MVMS. Some colleges allow slow learners to attend night classes in an effort to make up the shortfall in the time required for students to complete modules. This support structure has slowly been reduced through cost cutting and, inevitably, some apprentices find themselves missing out on significant areas of the syllabus.

Discussion

It is not entirely accurate to say that the MVMS embraces the philosophy of self-paced learning. The content of the syllabus, to which the apprentice has full access (vii), encourages the readers of MVMS to believe that whatever is required for the universal 'learner' to achieve common objectives is provided. Apprentices are encouraged to believe that they are *responsible* for their own learning, yet at the same time they are performance tested to measure the effectiveness of that learning.

Failure to complete the whole syllabus is also reflected back on the *individual* rather than other elements of the learning context such as the curriculum structure, college organisation or form of pedagogical relationship. Hargreaves (1982) has remarked on the insidiousness of the 'culture of individualism' in educational discourse and practice and its fallacies. In MVMS, the major fallacy is that self-responsibility in learning is equated with self-responsibility for failure, in this case, judged by others, thus allowing pedagogy to be exonerated for its failures.

It is not difficult to comprehend that in some instances this unique form of learning has reduced the quality of both teaching and learning. If teachers give full self-responsibility for learning to the apprentice, the modules used become the only 'vehicle' for learning. Rather than being individualised, a particular standard form of learning is encouraged. For some apprentices, left to their own devices, this then encourages them to obtain a teacher's signature of assessment by the shortest and quickest route possible This situation is exacerbated where teachers devise assessment standards lower than those of the technical literature originally stated in the objectives. Their input into the pedagogical process is thus further reduced.

The self-paced pedagogy apparently emphasises the active participation of the learner by a concern for individual learning styles, the promotion of self-responsibility and self-paced learning. In practice we have argued, this pedagogic code only allows for one particular learning style. Those who can perform to this ideological view of how people learn are not necessarily rewarded more than others in college, but find themselves in greater demand within the workforce as a productive unit for employers.

The force of this claim can be judged by pausing to consider what tradespeople do in the workplace. They are not allowed to continue with a given job at their own rate and devices until the work is completed. Customers want the work to be carried out to a high standard, in the shortest possible time. Managers are concerned to balance labour costs by controlling the time per unit and the quality of completed work. In such an eventuality, there is a fundamental contradiction between apprentices being allowed to learn their trade at a technical college adopting a self-paced learning style and the world of work. One must then view with suspicion any apprentice training structure which is founded on a mis-reading of work conditions, namely in this case, that of self-pacing, self-responsibility and individual learning styles. One must ask what industry expects in return for allowing apprenticeship training to be based on such principles.

Industry gets a more productive worker in a narrow sense (*cf* ASTEC 1987, 4) from MVMS because very specific skills and a concomitant knowledge base are acquired as particular stages of an apprenticeship. These are then measured adopting competency-based assessment procedures. In practice, this means that the apprentice is capable of achieving a specific standard within the college confines and in turn gives the employer an accurate picture of whether or not the apprentice is capable of repeating that skill or re-applying that knowledge in the workplace.

The MVMS purposefully encourages apprentices who are comfortable with the particular learning style constructed by it at the cost of those who have alternative needs. This mode of exclusion/inclusion is achieved by design and suits the needs and demands of the motor vehicle industry today. But for every success in this mode, MVMS creates its own problems for the future working lives of its graduates and for industry generally. The emphasis on hands-on skills learning has repercussions for the inevitable when the 'basic skills' specified in MVMS and the related technologies change or disappear altogether. At that time, MVMS trained workers will not have the necessary *knowledge* or *training* which will allow them to adapt to, and be proficient with, changes in their places of employment and associated equipment and vehicles.

Wider implicaitons

The discussion so far has outlined how the MVMS curriculum *regulates* teaching and learning about motor trades. The general point is that MVMS is a particular case of the transformation of educational knowledge and practice in a period of pervasive social change (Wexler 1987). It is important then to relate MVMS curriculum 'as practice' to some principles that structure educational programs in purported work-directed training. A number of tendencies in MVMS and similar curricula and policy documents can be identified as fundamental to their preferred ways of representing was 'education' means.

First, there is an assumed connection between educational practices and the 'world of work' that underpins such curriculum packages and policy. Both being with taken-for-granted propositions that the needs of industry and commerce can be identified and in turn used to build curricula. The pattern is recognisable as: the positing of job skills that can be re-made as objectives in curricula; the sorting of skills into general competencies that are transferable in the workplace; creating learning objectives on the basis of identified skills; and the organisation of teaching as the achievement of criterion based performance competencies in students (Moore 1987, 230). In this way, education and training are brought into an apparently closer relationship than in the recent past.

Second, as we pointed out earlier in the MVMS case, while a relationship between education and work is represented in the documents, it is essentially discursive. There are many discontinuities between the world of work as depicted in curricula and policy and relationships and practices in the workplace. The reality-effect of the discourse is given by the repetition and stitching together of notions like technology, skills, needs and so on, but *that* reality is a product of the discourse itself. As we have suggested for MVMS, the stories told in the texts of vocationally-oriented programs and policies cohere not because they provide news about the workplace, but because they conform to the conventions of behaviourism and an ideological construction of persons as workers. In this respect, the *internationalisation* of the discourse is important. Rather than reading vocational programs and policy as a reflection of local circumstances in which education is 'adapting' to economic conditions, they ought properly be seen in the context of more general shifts in the international reorganisation of capital. As Moore (1987, 241) argues, vocational education of the MVMS type is an ideology of production regulating education rather than an example of flexible educational ideology and practice servicing industry.

Third, the packaging of courses around skills and criterion referenced performances alters the relationship between the teacher and knowledge. The teacher becomes a 'facilitator', subject to control in matters of content and procedure from a central authority. While it is undoubtedly the case that many teachers do not teach in this way and there can be no assumption that policy in the form of curricula will be followed in detail, the point is that the logic of programs like MVMS in principle alters the professional standing of teachers. In addition, the *training* that teachers receive in order to implement skill-based programs reinforces the 'new' language of education at the expense of a more critical educational discourse. In particular, there is more emphasis on making training work better; on efficiency rather than critical analysis; on valuing practice rather than background theory; on doing rather than thinking. Such discourse becomes the commonsense starting point for separating ends and means, for de-contextualising skills, for becoming less critical about the conditions which give rise to vocational education in the first place. The political implications for the teaching profession concerned about its status are profound. More generally, there are many implications of a deracinated education for large numbers of Australians. It is difficult to apprehend how such education can contribute to the world of work in any long-term creative sense or to the construction of a better-informed society.

Conclusion

This analysis suggests it is important to sort out the relationship between the new language of education (self-paced learning etc.) and its purported ends. While the rhetoric seems historically appropriate and progressive in some respects, its realisation in programs such as MVMS imposes quite radical knowledge claims and values on educational practice. Such programs and their antecedent policy might well be the vanguard of a *new* educational 'paradigm' and political settlement which changes the principles on which curriculum, pedagogy and evaluation are founded.

Bibliography

APPLE, M.W (1986) 'National reports and the construction of inequality'. *British Journal of Sociology of Education*, (7) 171-90.

Apprentice Motor Vehicle Mechanic Syllabus (1985) *General Stream. Level 1.* TAFE Publications Unit, Victoria.

BEASLEY, B. (1983) *Reading to Learn in Trade Education*. TAFE National Centre for Research and Development.

BERNSTEIN, B. (1986) On pedagogic discourse. In J.G. Richardson (ed.) *Handbook of Theory and Research in Sociology of Education*. Greenwood, New York, 205-40.

BERNSTEIN, B. (1977) Class, Codes and Control. Volume 3, 2nd Edition, Routledge and Kegan Paul, London.

BRAVERMAN, H. (1974) Labor and Monopoly Capital. Monthly Review Press, New York.

GARRISON, K.K. and MAGOON, R.A. (1972) *Educational Psychology: An Integration of Psychology and Educational Practices.* E. Merrill Publishing Co., Charles, Ohio.

HARGREAVES, D.H. (1982) 'The Culture of Individualism'. *The Challenge for the Comprehensive School Curriculum and Community,* Routledge and Kegan Paul, London, 87-112.

HENRIQUES, J. *et al.* (1984) *Changing the Subject: Psychology, Social Regulation and Subjectivity.* Methuen, London.

KAGAN, J. and HAVEMAN, E. (1976) *Psychology: An Introduction.* Harcourt Brace Jovanovich Inc., New York.

McKENNA, A. (1978) Apprenticeship, A relic from the past—or a plan for the future? A discussion paper prepared for the 1978 National Conference of the Technical and Further Education Teachers' Association of Australia, *The Australian TAFE Teacher,* March.

MOORE, R. (1987) Education and the ideology of production. *British Journal of Sociology of Education.* (8) 227-42.

RUMBURGER, R.W. (1987) The potential impact of technology on the skill requirements of future jobs in the United States. In G. Burke and R.W. Rumburger (eds.) *The Future Impact of Technology on Work and Education.* Falmer, London, 74-95.

STROM, R.D. and BERNARD, H.W. (1982) *Educational Psychology.* Brooks/Cole Publishing Co., California.

WEXLER, P. (1987) *Social Analysis of Education.* Routledge and Kegan Paul, London.

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COMPETENCY-BASED LEARNING AT RICHMOND COLLEGE OF TAFE

JOHN FAHEY

J. Fahey, 'Competency based learning at Richmond College of TAFE', *The Australian TAFE Teacher*, vol. 24, no. 8, 1990, pp. 13–17.

Richmond College of TAFE, in Victoria, has been the pioneer in implementing educational practices based on competency based learning to all of its trade courses. Since the early 1970s, Richmond has been developing this innovative approach to training development and delivery. Here, John Fahey describes CBL at Richmond and their 'skills supermarket'.

The current activity associated with industry and award restructuring will have a significant impact on TAFE and its ability to meet the increased demand for training. Specifically, the impact will be on the content, structure, and delivery of TAFE courses and the TAFE and Industry Trainers who will deliver the training.

Flexibility is the key element of the future delivery of TAFE courses which must allow for multiskilling, flexible entry and exit points, and facilitate retraining of the workforce.

Flexibility will only be possible if:

- the length of courses are *not* considered a major criterion of learning success,
- courses specify the competencies and standards to be achieved, including the conditions under which competencies are to be performed,
- courses can be developed, approved and accredited quickly.

Unfortunately, assumptions made about many TAFE courses are:

- students need to enrol by a fixed date,
- students must have studied prerequisite subjects,
- they must attend classes at particular fixed times,
- that they must complete the course according to a rigid timetable,
- that students must undertake the whole course regardless of their individual or specific training need,
- that they must pass some formal assessment.

Richmond COT takes up the challenge

In the early 1970s the above assumptions were challenged at Richmond College of TAFE and the College undertook to develop its training delivery based on the principles of competency-based learning and assessment.

If courses are to provide the kind of flexibility required by employers and by students, TAFE teachers and TAFE course designers will need to be trained in structuring courses so that multiple/flexible entry and exit are possible, and that appropriate ways of delivering instruction are provided, so that the four walls of a College are not regarded as sacrosanct.

In 1990, Richmond College of TAFE is acknowledged as the only TAFE College in Australia successfully applying its educational practices based on competency based learning to all of its trade courses. The College has now become the focus of state, national, and international attention for the establishment of these innovative approaches to training development and delivery.

Courses are offered in learning units, or skill areas and a rolling enrolment system allows students to complete the units in a flexible attendance pattern. There are no formal classes moving lock-step through courses at all. Students individual progress through units is logged by a computerised learning management and reporting system; this is backed by an assessment system (term 'Continuous Quality Control'), that identifies areas of learning difficulty.

This flexible mode of program delivery is currently being enhanced with a 'skills supermarket', which allows students to select units in accordance with their personal learning needs , from across a wide variety of trades. They are able to commence their individually tailored courses at any age and at any level of learning, and in a completely flexible attendance pattern, provided they can display required cognitive entry levels. The role of teachers in this approach is enhanced because they become personalised learning managers, and are freed from the unpopular disciplinary overtones of class room teaching.

The skills supermarket

As a result of the knowledge and skills and experience acquired by Richmond's staff in establishing its competency based learning system, the college has been able to undertake the task of establishing its skills supermarket.

Richmond College of TAFE's skills supermarket is designed to address the learning needs of people requiring either initial or subsequent trade training. This innovation which is unique to Richmond and provides the learners with the opportunity to obtain a course which is tailored to meet their present learning requirements and provide them with the basis for their future learning. This innovation is designed to afford the learner the opportunity to undertake a relevant course whether they are motivated by the desire for professional advancement or self development.

The skills supermarket affords the learner the opportunity to select any one objective or number of objectives that will singularly or together meet their learning needs. The learner will be able to select these objectives from any area across a broad spectrum of courses, i.e. sheetmetal, panel beating, spray painting, light engines, automotive machining, automotive parts interpreter or motor mechanics

The skills supermarket menu is on a computerised system where the student will be able to make their initial selections on a course basis, i.e. panel beating or on a topic basis, i.e. welding. The learner then is offered the entire range of topics (each with a brief description) related to the general area, from which they may make their selections. These descriptions also have included with them where appropriate the prerequisites the learner must have before they can undertake that unit. Once the students have made their selection they can immediately enrol at student records and proceed to the appropriate learning area to commence their course.

Because Richmond College of TAFE's learning philosophy also includes self-paced learning the student does not have to wait for a group of 15 learners to be formed. On completion of their studies/course the student will be able to return to student records and receive certification of their successful completion of their learning modules.

The student records system is able to retain student records for a number of years, this affords the learners the opportunity to progressively build on their previous learning within a flexible time span, hence enabling them to obtain required qualifications, promotions, or a greater range of personal skills.

The skills supermarket as well as addressing the training requirements of the individual, will also enable the employers to identify the training requirements of their staff and obtain a training program designed to specifically meet their needs. This means that their staff do not have to undertake a great deal of learning which is unrelated to their needs.

Competency based learning and assessment, self-paced learning, and the establishment of the skills supermarket are ideal foundations to accommodate the resultant training demands of the Award Restructuring process.

The National Centre for Competency Based Training

Early in 1990, the Australian Conference of TAFE Directors approved in principle a submission from the State Training Board of Victoria for the establishment of a National Training Centre for Competency Based Training at Richmond College of TAFE and the subsequent preparation of a concept proposal submission to DEET.

The Centre, when established, will become the focal point for skills development in Competency Based Training (CBT) for TAFE and Industry trainers across Australia. This development will help meet the emerging demands from CBT, particularly arising out of Award Restructuring. The centre will seek to co-ordinate and utilise the existing expertise in all states in the development and provision of training for CBT.

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FROM CONCEPT TO PRACTICE: IMPLEMENTING A COMPETENCE-BASED PROGRAM IN A COLLEGE HAIRDRESSING CURRICULUM

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J. Bryson, C. Edgar & G. McAleavy, 'From concept to practice: Implementing a competence-based programme in a college hairdressing curriculum', *The Vocational Aspect of Education*, vol.42, no.113, 1990, pp.113–18.

Summary

The paper traces the process whereby the lecturers in a college of further education developed NVQ units in hairdressing into a workable form of curriculum. The process involved major changes in how the college section worked, with staff being required to jettison many traditional assumptions in order to meet the requirements of competence based learning. It is shown that competence based learning has radical implications both for the ways in which further education teachers design learning programmes and for the ways in which managers of colleges initiate changes in administrative practice.

Much has been written recently on the radical changes needed in the structure of further education colleges if lecturers are to meet the challenges posed by the introduction of NVQ programmes. This paper describes the practical steps taken by a hairdressing section in a college of further education, in Northern Ireland, to implement competently based education.

Background

In hairdressing, assessment requirements are laid down by the lead industry body and colleges have been attempting to adjust to these requirements which will entail the drastic revision of current modes of assessment and methods of delivery. The view of the lead body, in hairdressing, is that assessment must take place in a salon under commercial conditions. At the moment the person who carries out this assessment must be a 'hairdresser', a term which is not closely defined. These assessments are monitored by a verifier and that person is appointed jointly by the Hairdressing Training Board and by City and Guilds (C.G.L.I.).

The Hairdressing Training Board, a newly formed body, consists of members of various hairdressing bodies such as the following:

Association of Hairdressing Teachers;
British Association of Professional Hairdressing Employers;
National Hairdressers Federation;
Caribbean and Afro Society of Hairdressers;
Hairdressing Council;
Incorporated Guild of Hairdressers.

This lead body worked in conjunction with City and Guilds and NCVQ to develop a programme for the industry with funding provided by the Training Agency. The new programme was known as the Nationally Preferred Scheme for Hairdressing.

Information began to trickle through to lecturers in the college rather slowly at first as there is no Northern Ireland representation on the lead industry body, and they began to realise that radical and immediate changes were necessary if they were to retain their position in relation to education in the area. An inspector from the Department of Education, Northern Ireland addressed the lecturers at a meeting of the Association of Hairdressing Teachers (Northern Ireland) and introduced them to the requirements of NCVQ.

The head of the hairdressing section began to take action, realising that current courses would soon be withdrawn and would be replaced with a competence based programme. The City and Guilds 760 series, which was in place up to 1986, was based on norm referenced assessment with distinctions, credits and passes. One problem highlighted over the years was that a student who obtained a pass was not necessarily employable since the standard was not related to levels of competence. A student may have been capable of passing a test in the context of a college workshop but may not have had adequate speed to survive in a normal working environment; for example a student may have taken the best part of a day to complete a task and still achieved a pass. The course terminated in exams which tended to focus on recall knowledge rather than knowledge applied in context.

The City and Guilds 300 series which replaced the earlier 760 series, was intended to be competence based and had a large degree of continuous assessment. What inclined to happen, however, was that many lecturers tended to approach the course as if it were based on norm referenced assessment. In addition, a student could have passed the practical aspect but failed the theory and would not gain a certificate; again if a student failed one aspect of the practical a certificate would not be awarded.

In the past the experience of lecturers was that students could achieve certification and not be commercially viable because of speed. Their communication and interpersonal abilities may have been limited because they had not been tested in realistic working conditions. Since students often did not have contact with real clients they were unused to selling products and services and so did not develop appropriate commercial selling techniques which are crucial to successful business performance. Their practical hairdressing skills may have been non-transferable as, in the college, students may have been trained in one technique and could assume that there was only one correct technique. Attitudes such as these tended to breed inflexibility and inhibit students from being able to learn from reflection on experience.

Some practitioners perceived the old City and Guilds 300 series as failing to adequately address the development of creativity since some lecturers tended to interpret the syllabus in terms of a rather robotic form of skill acquisition. It was believed that the pass/fail nature of the course led some lecturers to feel that there appeared to be no room for outstanding achievement. Of course the City and Guilds syllabuses were intended to refer to assessment rather than pedagogy and lecturers were always free to facilitate the development of creativity and set appropriate standards but undoubtedly some were inclined to work to a limited interpretation of the syllabus.

The process of change

The hairdressing section is located in a college of further education in a major urban area. The section, which is part of a department, is a large organization catering for approximately six hundred students. A design team was set up to address the implications of competence based learning for the hairdressing section of the college. It was composed of the Head of section, tutors in charge of courses, the science team leader, and the art coordinator. Two representatives from the Hairdressing Training Board came over from England for a two day 'Training the Trainers' course prior to the first design team meeting.

The staff convened in a centre away from the college and examined the whole scheme over a period of four days. The head of section presented her views on how she believed the section required radical restructuring in order to meet the requirements of competence based programmes. The staff agreed to cooperate on the project. Over the four days they designed the modules for the new programme. In designing the scheme the staff dissected the eleven NVQ units of competence designed by the lead industry body ('blew them to bits' as one lecturer expressed it) and reformed the 46 competence elements (later reduced to 44) into eight basic modules and a number of sub-modules, making 11 study units in all.

It is important to note that NVQ units are not meant to be offered to students as a linear programme of study. In fact, in this case, the eleven units as they stood could not be offered as freestanding modules. For example one unit was on 'Neutralising' which is a process which takes place after 'Perming', therefore it cannot be effectively studied until a client has been permed and can not take place in isolation. The units, since they relate to occupational functions, are all individually different in scope and nature. For example there is a 'Consultation and Diagnosis' unit which cannot be taught in isolation since students need to exercise these competences continuously. In order, therefore, to ensure that the units related to occupational areas in an authentic manner, they had to be reformed. 'Neutralising', therefore, was allied with 'Perming' and 'Consultation and Diagnosis' was split up and became a core skill common to a range of units.

The existence of an NVQ unit such as 'Consultation and Diagnosis' does not therefore imply that the necessary competences can be acquired in isolation from other skills; in this case the competences are essentially derived from a process of reflection on different vocational situations rather than a 'one off' skill which can be demonstrated in a single situation. With open access a student can start on any one day and do and complete a module in colouring over whatever period of time they may need to take and they may not return for three months, but they will be accredited with achieving that competence.

The process of developing NVQ units into the form of a manageable curriculum was painful and difficult besides being very time consuming; there was a tendency for information to arrive in 'dribs and drabs' and staff had to assimilate the information continuously. On many occasions lecturers would think of problems which might slow the development and they would not have instant solutions but often had to put problems at the back of their minds and carry on. Radical restructuring is not a process that can be carried out according to preconceived plans as the participants rapidly discovered. Furthermore it was necessary to develop the ability to tolerate a certain amount of ambiguity, to accept that it was not possible to tie up all the ends at once.

There were, as always, a number of lecturers who said they accepted the need for change but who had hidden reservations; they were prepared to offer public acceptance of the changes but privately they rejected the need for a change in attitudes. Again, having designed the modules, some lecturers found it difficult to accept that the new programmes were not to be considered as tablets of stone and that they would have to be changed as commercial and industrial needs altered. The notion that the curriculum needed to be continuously restructured to meet the needs of clients was confusing and difficult to understand as lecturers were accustomed to curriculum change at a much slower rate. This was a conceptual leap for all lecturers concerned implying also that didactic teaching methods need not always be relevant. This was particularly the case for lecturers involved in the delivery of bodies of knowledge commonly perceived as being academic. One problem faced by some lecturers was that they were located in other departments with rigid time tabling structures without room for flexibility.

The new programme

Eight freestanding modules were devised with associated accompanying sub modules. The eight modules and the sub-modules were derived from the eleven NVQ units which had been transformed into a viable learning programme. This was difficult for some staff to understand as they had traditionally thought of course units as constituting a linear programme of teaching and learning. The freestanding modules were based on practical activities while the sub-modules were concerned with the underpinning knowledge. The modules were then timetabled in a matrix system as follows.

Table 1. Pattern of timetabling for modules in new programme

Examples of freestanding modules (practical activity)	Examples of knowledge sub-modules		
	Science	Design	Reception
A Colouring Hair	Science 1	Design 1	Nil
B Cutting Hair	Nil	Design 2	Nil
C Greeting clients	Nil	Nil	Reception 1
D Perming Hair	Science 2	Nil	Nil

The three kinds of knowledge sub-modules represent different orientations towards practical understanding. 'Science' represents the cognitive, factual aspects; 'Design' represents the creative aspects; 'Reception' is concerned with organising and management. This is a simplistic representation of a considerably more complex pattern of modules and sub-modules. For example 'A—Colouring Hair' is a freestanding module. This module includes practical activity (all modules are based around practical skills) and associated sub-modules in science and design; there is no sub-module in reception for this module. A system had to be devised whereby the main module could be offered in a salon with the associated sub-modules available at a compatible time. A student who is working in a salon may not require all of the practical input and may only need to attend the associated sub-modules.

The structure, in other words, had to take account of both new students who required learning experiences in practical and theory, and experienced students who had sufficient experience but simply needed to pick up the theory sub-modules.

For example the module 'A—Colouring Hair' was allocated an eighteen week duration for the 'average' student without prior experience but an experienced student may only require six weeks. At the first session the teacher negotiates with the students the competence to be covered and the teaching methods to be used. The teaching methods will include open learning as well as instructional sessions. A resource centre has been set up to facilitate flexible and open learning; the centre is also the administrative centre so that students can be assessed.

Students may be working on different activities during the same teaching session according to their needs and requirements. In fact students, in practice, will always be working on different activities on the same occasion.

While some students will complete the module in six weeks and a number will continue for a longer period, the flexible nature of student entry means that students joining the module at a later stage may balance the students who have completed the module and moved on to another module or simply left. Entry is completely open; students may join a module at any time. If all students complete a module at an early stage and no additional students enter then the module is dropped and the teacher is reallocated to a module for which there is current demand. The provision of modules is then demand-led rather than course-led.

A practical module is timetabled with the associated sub-modules taking place at a compatible time on the same day. In the past such associated units of study may have taken place on other days where full time students were concerned which would have meant that an integrated programme including part time and full time students would have been impossible. With the new system a group taking a module at any one time may be made up of full time students or part time trainees from salons or workshops, adults being retrained or people seeking refresher courses. People move through the system as individuals not as groups.

Reorganization on this scale docs present problems of adjustment both for staff and students and for the administrators in the college. In particular, there are role changes required of lecturers and these changes have only become apparent as the programme has developed.

Role changes

The operation of this system implies the devolution of responsibilities previously considered to be management or senior staff responsibilities. Lecturers had to assume new roles such as timetable coordinator as timetables became complex and everchanging. The changes in assessment meant that management and administrative responsibilities previously associated with assessment were devolved to lecturers. For example, formerly an administrative officer would have organized examinations; now lecturers are responsible for setting, marking and keeping track of the work which has been completed both practical and written. In addition lecturers have to keep track of the oral work; competence based learning now includes questioning students to determine their understanding of tasks they have completed; written tests are undertaken as part of the final summative assessment.

Oral assessment is more relevant to a practical task which has just been completed; for example a student can be asked to justify their choice of lotion or chosen cutting method or development time in terms of the demands of the vocational context. This enables the assessor to test the underlying knowledge in relation to the needs of the particular situation, which would vary from client to client. This demonstrates the contextual nature of competence based learning as the learning must be tied to specific situations. This is why the assessment must take place in a commercial setting where varied demands are made on the student from a wide range of clients with individual needs.

Another role to be undertaken was that of training plan designer and module designer. Previously lecturers had to produce a scheme of work from a syllabus which was given by the examining board. Now there is no syllabus. There is a list of competences which have to be achieved and a body of underlying knowledge to be acquired. The lecturers had to decide the best way to deliver the programme to suit the needs of the students and try to meet NVQ criteria while maintaining open access. The design team had to cluster competences into modules; it should be noted that the modules are unique to each training establishment as another college or training organization might have organized different modules to encompass the competences. The lecturers had to produce a training programme for each module which each student would then follow. From that point individual training needs could be assessed and training plans could be drawn up for each student. Each lecturer then had to plan a specific method of delivery which took account of the differing needs of students.

Delivery

A room was made available with open learning materials. A series of commercial learning materials known as the HOLD workbooks could be used as classroom teaching materials for younger students while they could serve as freestanding open learning materials for more mature and experienced students. Open learning materials then can serve a variety of purposes, from enabling students to progress at different paces within the context of a class or as freestanding materials for mature students who have relevant experience and are prepared to learn with minimal support from a tutor. Within each module the lecturer must take account of the differentiated learning needs of each student. This entailed a change of role from instructor to facilitator of learning.

Administrative support

It is not easy to keep track of 600 students with individual timetables, and who are continuously completing assessments at different times. In order to cope with this a scarce Apple Macintosh was commandeered from another department and a database was set up using Microsoft Works involving a science lecturer who worked on the programme. It should be noted that no special software was needed to produce the administrative system. Draft proformas for data entry were produced and were circulated to the lecturers for comment. Lecturers changed the proformas and as the proformas were used on a trial basis more changes were made. For example the original for data entry contained a category for 'street' for each student. It soon emerged that students did not insert the number of their dwelling as they did not interpret the entry in this manner.

In effect the development of adequate means of data entry was a form of systems analysis. The system was set up on the computer by a science teacher and a part time technician agreed to manage the system eventually becoming a full time member of staff. It is important to note that the system was set up with minimum resources; the technician began with minimum typing skills but soon developed the range of skills necessary to run the system. It was the human factors of co-operation and acceptance of the need to change that were crucial rather than the computer system per se. The system was crucial to the effective monitoring of the programmes as student records need to be continuously updated, on a daily basis, and class lists each week.

The concept of student attendance has changed completely and the college administration still has a traditional concept of classes and attendance so there is currently a mismatch between the demands of the college information system and the new methods being used to record information in the hairdressing section. Again traditional methods of calculating FTEs used by the Department of Education need to be revised as the national system does not match with the system used in hairdressing; as funding is tied to FTEs this is a matter of grave importance to colleges. Furthermore, while devolved management of budgets has yet to be implemented in further education in Northern Ireland, first indications of the new schemes of management suggest that they incorporate a notion of FTE-related funding which is weighted heavily towards full time courses and which may not take account of the changes taking place in modes of learning. For example one suggestion (ERA, 1989)[1] is that open learning students would be funded at 0.075 FTEs per student.

Accreditation of prior achievement

The Hairdressing Training Board is currently examining the whole question of APA. APA at the moment is restricted to diagnostic assessment at the point of entry which perhaps indicates that assessment may take place immediately. APA should not be regarded a separate concept as it is simply a form of decision making regarding when a student should complete assessment. If lecturers are taking account of differentiated learning then they will be continuously faced with students who may be exempted from aspects of the training but not the assessment. Assessment may be offered separately from training and can be regarded as being independent of training for some students.

Effects

There are now up to 30 per cent more students in the first year of operating the new system. Dramatically there are many more mature students, particularly with regard to the number of practising hairdressers who enrolled. In fact there has been a ninety per cent increase in the number of mature practising hairdressers, a category which, formerly had been under-represented. This indicates that the college programmes are facilitating the development of competence of workers in the industry to a much greater extent than was previously the case.

Students can now acquire NVQs in much shorter period of time especially if they have some prior skills. One experienced hairdresser with no formal knowledge of science or hairdressing theory achieved an NVQ level 2 in six months whereas previously it would have taken two years; in addition the student was able to attend at times convenient to her, which was important, as she had a full working load. She studied the science sub-modules through open learning with tutorial support.

Students can now enrol at any time of the year and this has greatly helped students who do not have to wait for the next year of entry. They may also serve at any time, if, for example they are ill or the demands of their job are too much and can return at any time when they are ready to recommence study.

The group identity of students particularly younger students has been affected by the disappearance of the traditional class structure. Having noted this, lecturers are intending to timetable discrete groups for the younger students to enable students to retain identity; this will not disadvantage mature students as they will be able to enter these groups as appropriate but the younger student will stay in the same group. In other words a group is formed consisting of young students but space is left in the group for 'infill' by mature students as necessary.

The administrative demands of the programmes mean that there is pressure on storage space as students are permitted three years to complete NVQs by the lead body. All the student summative assessment books have to be stored as well as formative assessment books as these have to be available for inspection at any time. Written work must also be kept for a period of years and this also makes demands on storage space.

Service lecturers, namely those lecturers from other departments who taught the theoretical components of the programme, experienced difficulties in coming to terms with these new modes of delivery and patterns of attendance. In addition service teachers, being located in other departments had traditional timetables for most of their working week and so had to cope with radically differing demands on their professional skills. Such lecturers tended to perceive a dilution of their traditional bodies of knowledge and expressed doubts concerning the quality of the service.

Debate centred on the nature of quality in knowledge acquisition. The hairdressers tended to focus on the practical applications of knowledge whereas some science teachers felt that some areas of knowledge were holistic and could not be segmented. Woolf (1989)[2] has argued that knowledge and understanding are likely to be highly contextualised and postulates the existence of hidden knowledge structures which underpin practical performance and which are often not made explicit by practitioners.

This notion of knowledge, however, is currently alien to many lecturers who perceive their expertise as having an historically determined structure of which they are the custodians. It should be remembered that such a view is commonplace in higher education and lecturers who espouse this notion of knowledge may not have far to look for support. In addition the nature of the programme meant that the number of hours allocated to science had decreased and some science teachers argued that a reduction in time allocated meant a reduction in quality. These are issues central to a consideration of the notion of competence and the relationship between competence and knowledge and will require careful discussion and analysis both in colleges and in training organizations. Colleges need to come to terms with the different models of knowledge used by lecturers. As Fiddy (1983)[3] has noted, colleges, being involved with the practicalities of course delivery are not noted for their concern with epistemology but this will have to change in the future.

An additional issue to be addressed is the entire area of departmental structures and whether the notion of 'vocational' departments being serviced by 'academic' departments is appropriate for competence based learning. While lecturers belong to different departments, the opportunities for continuous ongoing dialogue of the kind which tends to enable lecturers to develop real insight into the positions held by others, tends to be limited. Outdated departmental structures may inhibit the development of informal understandings among staff and may create unnecessary barriers. Complex epistemological issues cannot adequately be addressed by lecturers who are committed to defensive positions in relation to departments which were founded on the understanding that knowledge can only exist in the context of disciplines. The Department of Education, Northern Ireland, in a discussion document on change in the further education system in the 1990s,[4] has proposed a number of alternative models of college organization as being more suitable to meet the needs of the future. Such suggestions are not new in further education and have met with considerable opposition in the past but may have to be considered more seriously if colleges are to meet the challenges of the present.

References

1 Education Reform Act, Section 9, HMSO.

2 Woolf, A. *Can Competency and Knowledge Mix?* The Identification and Assessment of Knowledge in a Competency-based System. Conference paper, University of Sussex, 1989.

3 Fiddy, R. (1983). *A Curriculum for Employability,* Journal of Further and Higher Education 7(3).

4 Signposts for the Nineties. A Review of Further Education, June 1990. Department of Education, Northern Ireland.

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APPLICATIONS AT THE NAB

PETER McKINNON AND NITA CHERRY

P. McKinnon & N. Cherry, 'Applications at the NAB', *HR Monthly*, June 1992, pp.10–12.

Competency-based training (CBT) describes a particular approach to skills development. It begins by clearly defining what competent performance in a particular job or a particular task looks like. This usually produces a set of benchmarks that enable managers, trainers and staff themselves to recognise competent performance when it is achieved. Training strategies can then be focused on helping people achieve those standards of performance.

When the word 'competency' is used in this way, it is focusing on an individual's performance—the achievement of certain tasks to a particular standard.

To complicate things a bit, 'competency' is also being used in quite a different way to describe something else. It is used to mean any characteristic—including skills or other qualities— that helps people to be successful at their jobs.

This second use of the word focuses not so much on performance but on the qualities people need to be successful performers. Some competency models go even further and focus on the qualities that are needed for people to be outstanding performers.

Like CBT, this second approach has some important applications and implications for both organisations and individuals.

Using the National Australia Bank's definition of competencies, it might be helpful to outline what some of the possible applications are for organisations. Profiling the competencies required for particular types and levels of jobs throws up answers to the following questions:

- Is this a well-designed and realistic job? In other words, do people exist who possess this particular combination of competencies, or have we inadvertently designed a job that requires eight arms, eyes in the back of one's head, ESP and the capacity to walk on water? (But 'That's my job!' might well be the reaction of many readers!)
- What and how are people likely to have acquired the necessary competencies?
- It is likely that the organisation possesses such people? If not, can it develop them? Or must it recruit them?

- Once we have recruited and/or developed them, what else is there for them to do? Do we have other jobs that require similar competencies? Do we have a long-term career path for them that would meet our *needs and theirs?*
- Can we afford them?

These are basic questions of human resource acquisition, allocation and development—and they can be considered strategically ('What competencies have we got now and what do we need?), corporately ('What competencies are needed by the organisation as whole?'), and more locally ('What does this particular team/unit need?').

For individuals, the key issues might be:

- What is my present competency profile?
- What other jobs could I do using these competencies? How portable are my competencies?
- If my job changes, will that mean a change in the competencies required?
- How do I acquire new competencies?
- How do I further develop the ones I have got?

Most of the competency frameworks developed by organisations and academic researchers have focused on management jobs and have some marked similarities. They usually contain a set of core competencies that cover the skills, knowledge, temperament and other personal qualities required to perform management work at various levels in the organisation.

The approach of the National Australia Bank was to build on this evidence and develop a model that fitted the culture and worked across several planes.

A lot of time can be spent reinventing wheels, chasing Holy Grails of managerial perfection and creating glorious taxonomies of competence, yet losing sight of your purpose. The bank's goal was to not simply define competencies but to get managers to understand what they mean in local situations and start working with their staff on building development plans.

Literature and industry experience here and overseas was canvassed and a project team formed to steer the process of development and implementation. Interviews were also conducted with key senior managers and this foundation work provided the basis for a series of in-house search conferences with a representative selection of managers around the country.

Each group was asked questions such as: what does success and/or effectiveness look like in the National; what separates the 'outstanding' performer from the 'average'; what behaviors do we look for; what words best describe those characteristics?

A working set of 14 became 12, then 10, which, after some refining, rejigging and wordsmithing became the grouped set now used:

- *Managing self:*

  Self-management and learning

  Critical thinking skills
- *Managing relationships:*

  Interpersonal and communication skills

  Influencing skills

- *Managing the business:*
  Professional and technical knowledge
  Organisational and business knowledge
- *Managing opportunity:*
  Achievement and action
  Initiative and innovation
  Capacity for change
  Strategic perspective

There is nothing magical about that little lot. But for an industry that has traditionally rewarded technical competence rather than perhaps broader managerial/leadership capability, it represents a significant change in how management potential is viewed.

Interestingly, David McClelland's landmark work on US banks found that technical knowledge or skill was not a factor separating the 'outstanding' from the 'average' performer Rather, it was a 'threshold' competence, with characteristics like those we describe under 'Managing opportunity' being more discriminating factors.

This generic model now serves as the basis for the larger part of the National's managerial assessment and development processes. Assessment and development centres now operate at three levels: management, senior management, and general management, and the competency model has been integrated into each. This has created a more balanced picture of individual potential and more specific cues for development activity.

A competency review process is being implemented throughout the organisation. By taking a more devoted and comprehensive view of individual effectiveness, development can be better managed. Importantly, it has opened up opportunities for saying 'You are valued' and highlighting areas of change that might lead to greater effectiveness (when feedback of this type might rarely have been given in the past).

Managerial training and executive development is now increasingly being shaped within the competency framework. Managers will now be able to see stronger links between what is needed and what they do, both in training sessions and back on the job. Action learning principles and commitment to not only measuring but reflecting on outcomes at a personal level as a process of change, are key elements of this process.

Throughout, there is a vigorous emphasis on self-development: engaging managers in the process of understanding who they are, where they want to be and taking responsibility for acting.

As the National moves further down the competencies track, the connections to recruitment/selection and career and succession planning processes will be enhanced and reinforced.

At the recent Australian summit on management skills there was a strong emphasis on the need for building generalist management capability as a factor critical to future business success in the wider international community. The National has taken this notion seriously in building a generalist model that can integrate a range of human resource activity and be tailored to meet specific needs. They are small, incremental steps in organisational learning, but steps that suggest the journey is worthwhile.

Germaine Greer recently said: 'I have a great deal of difficulty with the idea of the ideal man. As far as I'm concerned, men are the product of a damaged gene.' Competencies are not a quest for the 'ideal' man or woman. However, they do represent the notion that the past alone will not prepare us for the future and that old criteria or measures for looking at managerial resources are unlikely to be adequate for the new demands. Competencies represent a way forward that supports business goals and invites people to share in the process of growth and development.

Acknowledgments

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